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Atari Users Magazine

Issue 20

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PAGE 6 is a user's magazine and offers mainly an outlet's support in submitting articles and programs. The aim is to give Atari computing through the exchange of information and knowledge. We will endeavour to pay for articles and programs whose appearance will enhance the magazine and whose selection has been approved.

In future hope that you will have more articles submitted by other users. All published material is eligible for awards in the Annual Readers Poll and may also be selected Editorial awards as announced from time to time in the magazine.

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News

NEW ATARI HELPLINE

Atari have announced a new Mail-Order and Northern HELPLINE to supplement the existing south lines based on a new 021 307 3636 and it will be manned by an experienced staff of both 8-bit and 16-bit systems. If you require any assistance, whether technical or otherwise, the HELPLINE operative will be able to provide an answer or refer you to the appropriate source.

The existing Southern HELPLINE will continue on 02 308 7770.

STAR RAIDERS II

It really is on its way! Although based on a previously unreleased game called The Last Starfighter, Atari have apparently changed their game considerably to make a sequel to Star Raiders. Several improvements include a modified (it responds to the joystick, new space stations and a tactical display STAR RAIDERS II is said to be available very soon but at a price.

NEW PERIPHERALS?

There were rumors that Atari would launch new peripherals for the 8-bit computers at CES or LA5 VEGAS but they failed to materialize. According to an Atari spokesman though several products will be launched at the HANNOVER FAIR in April.

Included are said to be an 80-column interface, a 31" disk drive, and 'possibly' a new 8-bit computer. The 31" drive is expected to be a single sided 82K drive with access time about twice as fast as the 1080 DOS 1 and 2.5 files are said to be a widely compatible to the drive. Let's wait and see.

MAJOR NEW SOFTWARE COMPANY

Just at a time when many of the major American software companies are abandoning the 8-bit market to seek new frontiers with the 32-bit, comes an announcement from Software Express Computer Systems Ltd of a major new software publishing house that will have Atari 8-bit products at the forefront.

The new company, Software Express Computer Systems Ltd, (S E C S for short), is a collaboration between Software Express, already widely known and respected for their retail and distribution of Atari products, and Jon Dean formerly of Atari UK. Jon Dean has been a long time Atari enthusiast and believer in the new direction to keep the Atari market alive and well with the new company. He states "I realize the potential that exists for Atari 8-bit products, but about 75-bit, and I left Atari believing I could do more for Atari from outside than from within". The company intend to introduce a whole new range of Atari products but one key point of their strategy is to ensure that the software is at realistic prices. Many new owners were attracted to the 500K, because of its price and in Jon Dean's words "have more of a bargain than they realize". The key to realizing the potential of the Atari for alien owners is to ensure that good quality software is widely available at all prices starting as low as £3.99.

Another area which the company will concentrate on is PEX which stands for Program Exchange. Many existing owners will recognize the acronyms of name as APX which was run by Atari in the States. The idea of PEX was give ordinary home users the opportunity to have their programs replicated worldwide by a company capable of handling the production and distribution. Many of these programs will be of a specialist nature that most other software companies would not be interested in. Jon Dean recognizes that quite often the best are also the most specialist ideas come from home programmers. The company hope to evaluate all types of software submitted from ordinary users and will work closely with authors whose programs show potential to help bring them to the market place.

As well as producing their own titles, S E C S will agree to cross rights with both UK and American companies. Smaller UK based companies will have the opportunity to have their software distributed by a major company thus overcoming many of the difficulties faced by small companies in a large market. Several companies have already been signed up and the first product will be launched at the forthcoming Atari Computer Show in London.

The company have already made an impact in the United States with its first launch at the CES Show in Las Vegas. Another of the company's directors, Jerry Howell, who attended the show pronounced the company launch a "complete success" with several licensing deals agreed and guaranteed U.S. distribution for all S E C S software.

The company will produce software for all computers but with the Commodore background rooted firmly with Atari, Atari software will be at the forefront. In the meantime, if you have a program that you feel has sales potential, Jon Dean would like to hear from you. Programs, with supporting documentation, should be submitted direct to Jon Dean, S E C S, A, Callow Creek, Barbage, Wiltshire, SN8 7TB.

ANOTHER NEW COMPANY

Another company new to Atari products is Genesis Graphics. The company believe that ATARI will have a big impact this year and have released two new titles, *ZONE X* and

KING OF THE KING. *ZONE X* has 5 levels and over 180 screens in which the player has to 'make calls' plus some music whilst avoiding the usual adventures. *KING OF THE KING* is a boxing ring in which you can take your fighter to the world championship. Make a change from boxing!

ST - YOUR VIEWS

In the Editorial See Issue 18 I invited readers to share their thoughts on how the ST would affect the existing Atari community. Here is a selection from some of the letters received.

From Cpl John O'Halloran in AFPO 47 ...

"I have been an Atari enthusiast since 1982 when I bought my crummy old 400 and have slowly but surely defined deeper and deeper equations of the machine. While not professing to be anything but a poor amateur I feel involved in any chat to the best of my knowledge there is still not on 8-bit machines to match the flexibility of my 400. My only disappointments has been in the sound capabilities and I was looking forward to the ST just to see the machine's capabilities in the sound department. Was much better than the 8 bit 512."

"Unfortunately I cannot see myself upgrading to an ST because, quite honestly, I believe in giving value for money business machines. If however a 2600ST comes out and shows me that more concerns the home market, I may think again."

Paul Carfoot from Burton-on-Trent expresses concern that Atari may find themselves in the same position with the ST as they did with the 8-bit machine - lack of public awareness.

"Although the ST is available through specialist dealers to those who already know, I hope you to see an ST in any of the multiple stores where most are customers do their shopping. Indeed I went into the computer department of a large multiple store to ask about the ST and the assistant had never heard of it! Although there might have the edge now with an advanced machine, it will not be long before the opposition catch up and will compete well as I feared having a much higher profile on the high street. Atari might find themselves in trouble. Will I buy an ST? Probably yes, but I

am being cautious to see how the market develops. I don't want to be left with a business only machine although I don't think that will happen."

Mike Doyle from Loughborough remains to be convinced ...

"I agree very much with what you say. The old 'planning' era of the early 400/400 days is past, although I feel that, given continued support, the 1.000K will help the needs of the average (and 'average') home user for a long time yet. I see my 1.000K for music and general publicity records for a drama group, word processing and home record-keeping, as well as all those miscellaneous jobs."

But what about the 2600ST? I bought my first 400 four years ago. When persuaded me to buy a new one game - you guessed it, Star Raiders! I was convinced by it, but I have yet to see any software for the ST which brings back the feeling. I cannot touch the ST, as specification is great but I want to see a machine like the rumored 2640ST at a price that will make it a 'people's computer' and thus persuade software houses to support it. The ST's desire to succeed but I am warning to see if the 2600ST gives my needs. If the 2600ST or an equivalent machine does not arrive, Atari will be making a big mistake, they have the opportunity to bridge the gap between business and home users. The ST's will do both jobs but I will not buy one until Atari can persuade me that they really want to get ST's into the HOME and will provide or encourage the necessary software support at the right price."

Clare Darke, who wrote Grand Prix published in issue 18, is already convinced!

"Yes, I have bought one. I bought it for the 80 column display and GEM environment and of course to have the powerful 68000 processor to play around with. I intend to write games, home finance and a few business programs for my own use."

Johnstone the man of business software at the PCW store and very kind of the things they will show the real power of the superb machine as would good arcade games. Let's face it, computers are used for business and the ST will be widely used but I will use more 90% of the time for games. Although my ST will be doing some business, the main use is to play and write games. I bought it one of my own pushes with the knowledge that the Atari 400 has served me well for five years and is good for another two. If the ST does business I do it be very happy. I think that the business philosophy will be surprised how many people have already purchased and will purchase an ST to have, or have, a powerful personal computer to play games."

Alan Palmer from Basildon commented more generally ...

"You made some interesting comments on the arrival of the ST onto the home market. I must admit that I'm still slightly nervous that the new AT&T might be coming many from the influence range of 8-bit users within the 400 and 500 market in 1979-80, however, with a wide base in the US and elsewhere and the range of software available, I would be surprised if the 8-bit range didn't remain viable for a while longer. From what I've seen, I'm impressed by the ST's but I imagine it will be a while before I upgrade mine. The main difference between the branches of the ST and the 400/500 in the UK is that when the 400/500 was launched in this country, there was already wide range of software available due to the UK launch being at least a year after the US. This time, there is a whole different ball game."

From Steve Pinder, who wrote the excellent series on Display Lists for PAGE 8 ...

"Let me say first of all that I would love to own one, and if I had the money would buy one like a shot! I bought my Atari 400 in October 1982 and the only thing I have regretted is that I didn't buy

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Letters continued

is written. In particular, I would have liked to have owned an Atari in 1985 or 1986 when everything about it was new, when by simply playing around you could discover something that nobody else had yet found. The ST is at a classic stage now, and I would dearly love to be in on the ground floor when users begin to get to grips with the machine. There is, however, another rule to this. For the past few months I have felt that I am wildly beginning to know the BBC, my decision to learn BBC assembly language arose from this. If I ever switched to the ST, I think the 1. I would ever become an expert with the 8-bit machines and I would like.

If I decide to stick with the BBC (or leave for another year or two) what are the prospects then Atari (and more importantly, perhaps, the third party software houses) will continue to support these machines? Although I have occasional doubts, reason tells me that such prospects are good. For one thing, there are many,

many, first owners, both male UK and worldwide and hopefully there will be considerably more in 1986. Secondly, there will, I think, continue to be a significant market for 8-bit hardware, at least for another 3 - 10 years. Not everyone can afford an ST or an equivalent 8-bit machine are cheaper, easier to understand and so on, and are far more attractive to the dedicated video game player. Clearly, the market will slow down. In two years from now, I believe that there will only be 2 or 3 manufacturers of 8-bit games (Atari, Commodore and, maybe, Amstrad) so I don't think the owners of 8-bit Ataris have any cause for concern for the next few years. The market for hardware and software is simply too big to be ignored."

And what about the Editor's view after having had a SHERF for several months? Well, I have hardly scratched the surface, but I am impressed by the

variety and quality of the software already released. The ST will run business applications extremely well although it does require the OS in ROM, but equally it will run games of a quality that none of you have seen before. Already there are games which show that the ST will be, in a whole league above the 8-bit machines and that is only early days. It is an incredible machine. On the other hand it is expensive, not expensive for the majority of "non-dedicated" potential home computer buyers and for those who want to program it is complex. Writing good programs on the 8-bit machines is relatively easy (easy?) but you will not feel it so with the ST. One of the problems that the ST faces is that the software it can run is so diverse, no one yet knows what will be the most popular application. We shall see. In the meantime PAGE 6 will continue to support Atari in all forms according to our readers wishes.

ATARI SHOW

In early March the National Hobbies in London will be the stage for the first ATARI COMPUTER SHOW, an event long overdue and eagerly awaited by all Atari owners. The show runs from 7.30 to 10.30 March and is open from 10 a.m. to 4 p.m. except for the Sunday when it closes at 5 p.m.

The show has the 'hobby' feeling of Atari who will ensure that software developers will be there in force. Atari themselves will have a large stand showing the entire product range and are expected to provide the first U.K. showing of the 1040ST. There are several other new products in the pipeline but as the time of writing, Bob Harding, U.K.'s Product Manager was unable to confirm which of these will be shown. Atari do however consider this to be an important show and Jack Thomas' himself will be attending.

The major difference between the ATARI SHOW and PCW is that this time there will be plenty to actually buy. As well as companies showing their own products,

there will be several retailers selling everything from software to blank disks and accessories. This will be an ideal opportunity to see, and buy, some software software you may have read about.

One of the major attractions will be the launch of the new software company S.E.C.S. showing several new products for the 10 bit machines and their associate company Software Express from whose many sheets of software, supported and home produced, will be available for purchase. Other visitors to the show include Sea Computers, Microscape, Software Plus and, of course, Stone Shop who will have a large stand.

Blank disks, tapes and accessories will be available in bulk quantities from Computer, who are also named for their local hardware prices, as well as Zone Post and Data Disk Supplies.

Hardware and servicing will be well represented with Data systems launching their new Sound Scanner and ImagoPhoto; Robotix showing various computer con-

nected devices.

Among companies showing new software for the Atari will be C.D.S. who will introduce Steve Davis Snooker along with a range of bridge titles under the Blue Ribbon label. These individual games (2 to 10 each or five titles on one disk for 19.95). They are also already well established on the BBC. For the ST, Computer Concepts will introduce the first ROM based software, FAST ST BASIC which is based on BBC BASIC. Computer Concepts are well known for a range of ROM based software for the BBC.

Many other exhibitors will include companies showing printers, books, magazines software, leads and accessories and more. And, of course, you can most welcome to come along to the PAIR's event!

The first ATARI COMPUTER SHOW looks like an event not to be missed. Organisations Database Publications reports having already sold thousands of advance tickets for this long overdue show. Let's hope that it will be the first of many.

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UPDATE

GRAND PRIX (ISSUE 18): Several readers had problems running a cassette version of Grand Prix due to a couple of errors on the load and save routines. In BOTH the Cassette Loader and Server routines the Space 9999 in line 30 should be amended to 9991.

Additional points which may help on or slightly amend the procedure for making a cassette. Follow the correct steps on page 13 but add -Step 4a. Type NEW (RETURN) -Step 5a. Type NEW (RETURN) and Step 6a. Switch off and re-load.

Following these procedures you should have no problems. The cause being is fully correct.

BURTTIE (ISSUE 18): The instructions for cassette were not clear. The second listing should be saved immediately after the first by using 'SAVE "C"'. If you then change the 'LOAD' in line 159 to 'RUN "C"' the second program will load and run automatically.

James Halpin from Ingham suggested the following amendment. Use 'CSAVE' for the second listing as normal and change line 130 of Listing 1 to

```
130 RESTORE 790 FOR 1-1536 TO 1154: READ A
FOR E LA MENT 1: PORE 764,12 A:=USR(1154)
```

and add lines 190 to 192

```
190 DATA 162,201,154,368,103,71,368
191 DATA 84,72,168,64,42,132,107,168
192 DATA 251,76,41,67
```

Listing 2 will then run from the tape without any further work.

BLITZ (ISSUE 18): Mr Goodbody from Harnow writes to point out that the strict mode was not disabled and suggested amending line 1000 to

```
1000 ROMB=1: BCB=0: PORE 77,0
```

LIVINGSTON BBS (ISSUE 18): The telephone number should be 0566 56326 and not as stated.

READERS SURVEY & POLL

Boy, did those cards come rolling in! Thousands of them. Thank you to everyone who took the time to fill them in (it wasn't really the fare of the prize was it).

It will take some time to analyse the results and this issue has to be completed before the closing date. We will publish a list of the prize winners in the next issue so if bring you the results of the survey and poll as soon as possible.



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The much heralded VIF Professional seems available for the first time, both money and otherwise. First in the UK is £1795 which might be higher than anticipated but a nevertheless an excellent price for a fully equipped powerful spreadsheet. The other main benefit, the available version of VIF is 'real' only, that is a decision was GEM has more importantly there is only just over 30K available for the actual spreadsheet. A GEM upgrade would be possible, via a coupon in the pack) when you have either fitted TOS or ROM or upgraded to 512K. It is a superb program but does need ROM to be effective.

The 1 Meg 1040 ST looks to be a realy with the price to the US recently quoted as between \$799 and \$999. The reasons are that the 1040T is in personal configuration is no longer in production (Acer having sold 300,000) and that a new 1040T with TV capabilities will be available at a substantially reduced price. Various press reports at the U.S. indicate that the 1040T will be launched shortly and Acer US will make any last comments about other models. Rich Harding of Acer has been quoted as saying "We will launch a low level ST product this year" which most reports are reluctant to connect the 1040T to the 1040G introduced at the same price as the existing 1040T then surely the 1040T becomes the low level ST product?

Get a window? Then roll up what is said to be Europe's first commercially approved BIOS supporting the ST. The KIPFF board operators 24 hours a day from Sheffield on 0743 617963 using 8086 based Symp in Queens, Bedford who has many years BIOS experience and the subsequent charge is £2.75 payable by Access online or by cheque. Although it is only 60 days, the latest does look to have potential with public domain software developed, a "Talk to Acer" feature and the usual savings. Development will need a similar software and hardware for the site using credit card facilities online.

Acer has finally sorted out the long struggle about the bundled software that should have come with the early ST's. Digital Research failed to deliver its promised products so Acer have stepped in with DIBED by GEM at the word processor and DIB HANDLE ONE a database, in place of GEM PAINT. Also free are MPTADMIN, a superb file management software game and GEMMILE. It was always had them, gone over with your dealer now.

The CES show in LAS VEGAS in early January saw many more well worn sales units to be available for the ST. Among those to look out for are STAR BARDON from 4-tes, probably the classic computer game of all time, as a much improved and highly detailed version. The classic version is quite boring and those who have played with early versions have been slightly impressed.

From Access are promoted ALTERNATE REALITIES, a series of three role-playing adventures originally developed for 4-tes systems but remarkably enhanced to take advantage of the ST's greater power. These will be long into coming though with the introduction scheduled for Christmas 1986. Moreover had SILBENT BERTON, again a highly thought of game on the 4-tes which is a cardroom based on software writer Accessport, better known, was PRIN TWACHTER from Unisoft. World, a utility similar to Bradford's PRINT SHOP. From Acropolis comes JUNCTION - THE FINAL LEGACY, an 8-bit style program originally developed for the Apple Q-D-S (see PERSONAL PARCER) the first of several "Personal" packages from Q-D-S which is said to be up to the usual Q-D-S high standard.

HINTS & TIPS

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If you have a window open for a particular drive and wish to see the directory for another disk just change disks and press ESC. Much quicker than closing and opening windows.

If you have problems in figuring out how to change the drive and take a 5.0 floppy disk to the computer (it clicks with the mouse and see the back space), ESC will clear the highlighted area.

Would you like to save last program on your ST? It really is quite simple. Just assign a folder named AUTO and place your program inside it. Make sure that your program has the standard .PRG and away you go!

What is the biggest pain in using a colour monitor and a monochrome monitor? Right, it's pulling that plug and time and space. Well, help is on the way. The ST apparently has the ability to handle both monitors connected at once with everything controlled by software (in the control panel). It is estimated that Acer may bring out a switch box and also publish a circuit diagram in Acer Explorer. If it appears we will let you know.

It is not very easy to get the ST to work with just any monitor. Firstly the RGB output is analogue and most monitors expect TTL signals. The standard presentation many problems in TV/Monitor owners in that not to accept analogue RGB signals the biggest problems overcome is that the normal output signal is at 60Hz and most TV/Monitors just run at 50Hz, they expect 50Hz. If you've got a TV/Monitor you may be able to purchase a NTSC into PAL colour conversion board from your TV manufacturer (I recently 1 year and 8 months have got the drive unit) and, if you are very lucky, and even a recent model Philips, it will work without any modification.

If you want to copy more than one file into a folder in one window disk you can hold down the SHIFT key and click on each file you wish to copy, even if they are not adjacent. Hold the button on the last file selected and drag down over to the appropriate size or window and the whole lot will be copied over by one. This also works when deleting files.

If you have trouble getting a printer to load the ST, print an out on IBM PC/Compatible load.

The ST's resident screen dump (called by ALT+HELP) is for Linux compatible only.

You can't rename folders (unless you know different...) as a three screen wide one.

Many thanks to David Kent from Shell for supplying many of the facts and tips above.

ST Gallery —



Left: *ST* by Edvard Munch



ST GALLERY

The pictures shown are shown under such *Neoclassic* or *Neo-Gothic* and the authors are unknown other than *CHLSEYS* I which is by the *Edvard Munch*. While not profiting in any certain way, it is included to demonstrate the size of war of *CHLSEYS* and the *ST*. It was drawn in a more *Edvard Munch*.

ST GRAPHICS

D.E.G.A.S.
Batteries Included
£39.95

If you were impressed by Neochrome, stand by to be even more impressed by DEGAS, a superb graphics sets system developed by Tom Hudson, formerly of Analog magazine who, I believe, began development of the program as a working for Analog but has ended up with one of the best packages so far released for the ST.

DEGAS is basically an artists utility to produce superb computer art in low or medium bit colour or even in black and white. One area where it flourishes is Neochrome with ability to create text in a variety of styles, with any graphics image thereby opening up the whole field of design to those with lesser artistic abilities. Even with the restriction of background design using shading, results can be achieved. The secret lies not in the mere placing of text on screen or the conventional manner but in the ability to use text of several different sizes, and from several different fonts on the same screen. You can even add shadow in any of eight different sizes and at any distance to give 3-D or double text. You can use any of the several font supplier designs you wish with the font editor, another versatile and easy to use program on the disk. Let's not get too carried away by the text, however, for this is also an excellent graphics package.



Graphics were almost all you would expect from a drawing program in there. A full screen menu gives 19 choices of screen with 16 brush sizes and a 16 colour palette in low res together with an illustration of the current fill and line patterns. Selection between the menu and the full screen drawing screen is simply by clicking the mouse. All of the supported drawing commands are there such as Draw, Point, Line, R-Line, Keys, Fill, Circle, Disc, Frame and like but by using the keyboard other shortcuts are available such as boxes with rounded corners or perfect circles or Polygons. An artwork mode is included, in which screens alter settings, and it works in a very similar way to a true artwork. You really do seem to 'type' text into the screen and can fill an area to any desired size with it. The Fill feature is extensive with 38 different Fill patterns supplied but also includes an art colour to allow you to design your own patterns and store them on disk. Likewise with brushes and lines. If you don't like any of the ones supplied, you design your own and save them on disk.

Image works superbly. By using the magnify key, a small rectangle appears on screen. Move that over your desired area and click the mouse button and that area will enlarge to fill the whole screen. Each pixel is clearly seen



and can be adjusted as you desire while a small frame the size of the original rectangle appears at the top left of the screen and is updated to show the actual effect of your adjustments.

A Shadow mode is available, again set to your preference, which will work in direct mode but is much more efficient with text. Coming back to text for a moment, you have a choice of either Block Text which obscures the background or X-Ray Text which overlays it background design. Block and X-Ray also apply to the Copy mode where you can select any area of the picture to duplicate to another part of the screen.

There is a lot more to DEGAS due to the ability to customize many parts to your requirements. You may change colours, fill patterns, brushes, line shapes, fonts, screens, shadows and the artwork and you can save many of these on disk. Of course you can also save your pictures and show them again with a Slide Show program provided. The pictures we used as a format unique to DEGAS but a utility is included to convert Neochrome pictures to DEGAS format. Pictures can be printed via an Epson printer driver provided and Batteries Included printer even prints drawn clearly. Also to come are extracolors and many more finished pictures some of which will be available commercially and others which will be released into the public domain.

DEGAS has certainly not a standard for drawing programs on the ST although it does have a few weaknesses. It lacks Neochrome's superb ability to cut an image from one picture to another and the adjustment of the colour palette is much more 'fat and mass' than Neochrome's on-screen presentation. The only other niggles is the selection of fill and line patterns where you must cycle through all 38 patterns. If you go too fast and miss the one you are after you must go through again.

One parting comment about the manual. It's only 100 or so floppy page paper thick book which suffers the rights and drags that has gone over to DEGAS. Easy to use, totally errorless, you may stop reading now, go out and buy it.

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A LOOK AT TWO C's

GST C AND HIPPO C reviewed by Matthew Jones

GST C

GST C is the best "real" application software I have yet seen for the GC. By real I mean actually useful to somebody other than writing the computer (i.e. clients). This feature is usually another good use of the GEM facilities, unlike all the other GC compilers I have used.

A normal window starts by loading the GST C "shell" program. Using the drop-down menu-style editor you can edit or create or edit your program files, then compile, assemble, link them together and finally run the program. A complete edit to run cycle can be done entirely with the mouse and, what is more, without straining to do so. In comparison the Digital Research compiler sold to software developers is useful, using touch film and a lot of superfluous typing. Each period GST C can be used independently if you wish to install review each part in order of use.

GST EDIT

A lot of editing goes into my programs, and the GST EDIT is wonderful to use. More editor editors available (Microman, Microman, Microman, Microman) than the "DOS" mode of the ST, i.e. using the ST as a 80 by 25 terminal and not as a GEM computer! Such editors are easier to write than GEM classes, and that's why they were not first. GST offers what most other "real" C editors do, showing up to their files in the editor window. While others do more windows, this becomes a much more developed and a customer completely itself as it is now possible to load the file that calls it, do file (as the routine is), a header file for external definition editing and a GEM interface for use for reference for whatever modification you require.

An editor is not much good unless you can use it, so GST EDIT provides all the usual facilities in an easy to use way. Simply key edit like search/delete word/line, page up or down etc. are available from function keys, and repeated on a desktop size "function tray". This allows you to select the functions by clicking with the mouse. Cursor movement is just a matter of pointing to the character and clicking, the cursor moves straight there. The cursor keys are available as well of course. Text is entered wherever you place the cursor, and can be as insert or overwrite mode. Lines can be left-aligned, right-aligned, and word based as used in text not currently of access.

GST EDIT comes into its own when you start working with blocks of text. Unlike the Microman editor blocks, which only start and end at whole lines, EDIT allows you to place the cursor on any character to mark the start and end of the block, and when they are marked, the text is shown "hatched". Having marked your block you can cut, paste or delete it. Cutting takes a copy but does not delete the original and pasting inserts it at block (usually word after marking the cursor). A facility I miss is block move which moves one, deletes then pastes text and which rarely can't be too difficult.

What really makes GST EDIT powerful is that you can cut a block from one file, show it in the window of another file or vice versa (or "top edit", the text is shown "hatched"). Having marked your block, the file name or filename is. Cutting takes a copy but does not delete the original and pasting inserts it at block (usually word after marking the cursor). A facility I miss is block move which moves one, deletes then pastes text and which rarely can't be too difficult.

The two major features of the editor is Search and Replace. This is very rarely done in EDIT, allowing you to choose one,

even or all occurrences of the chosen text to be changed. When an occurrence is located, a "menu" menu, a little dialog box is opened for you to see if it is, No or Cancel to do nothing, or maybe another one there too. Once a search is replaced in specified it can be repeated without entering it again, however this is one of the annoying points in the menu menu to select it or to change the text but both it would have both to search later.

Another nice feature of the two files editor is the window style. Each occurrence window is centered smaller and made the previous one. The effect of this is that when you want to edit the larger (bottom) window, all the other window disappear underneath. To edit them, you must first move up over the larger (now top) window. This is a good lesson for other editors, as this is always how text is done. What is stored by a menu the first on the top left corner, the second a bit down and across, the third down and across and so on. All should be the right size, and the next button presses that will set some part (the bottom left corner) in a new window, and thereby selectable. That the windows also cover the function key region in editing is sensible (and this means) is another problem together. This is actually done in a quick in the development (R2.2) but could be solved by putting them on the left vertically.

To sum up, GST EDIT has all you need in an editor, is available via an icon, and makes the whole package very usable.

GST C

When you are looking at a C compiler there are two important parts to look at, the implementation and the library. GST do not consider (or otherwise) their compiler, called CC PRO, to be a "full" implementation of the C language. It lacks floating point arithmetic, wide dimensional arrays (although they are available), macro definitions with parameters (define A(x), structure and pointer "file" nesting. It may seem a bit but there is a lot in the "C" language, and there is plenty left to play with. Apart from the common, CC PRO compiler in the Knowledge and Review standard. There are many books on the C language, but the book by Kernighan & Ritchie (who wrote the original C) is the "bible" in other compilers are written/developed often use the expression a full E. B. R. C.

The C language has no facilities whatsoever for input or output. This may seem stupid, but as a standard part of any C compiler under ST/MS-DOS library by which the I/O is done. A library contains a large number of standard code sequences which can be "called out" and used in the final program if they are needed (referenced or called). A C program is portable because there is always a standard set of instructions to call the putchar(), getchar() and printf() (C is written in lowercase). The authors of the different compiler implement them in the best way possible, but they provide a machine independent interface for the programmer. With GEM more libraries are needed, one for the Virtual Device Interface (VDI) and one for the Application Environment Services (AES). Digital Research provided a standard interface, and the libraries allow the user to use them in his program. The AES is the part of GEM that looks after all of the mouse, windows and dialog boxes, and the VDI is the part that does all the writing and graphics on the window.

GST ASSEMBLER AND LINKER

While there is a 16800 assembler as part of the package, it is only useful in the context of developing C code. The information we get is little more than how to run it, or what it may be the main assembler as they all apparently (I don't know), you will have to pay special thanks Ajay. The linker option is vital, but only when details are provided as you don't need them. GST we trying to get their linker considered as a standard with Message being the first company I know to produce software that is not a .dot. I don't know the name of GST's linker, but I hope that is standard in some way as it would make life as a developer. IBM distribute a linker with every machine, but covering a standard, but not supporting other writing different systems.

CONCLUSION

As with all programs there are a few things that could be improved, but the linker is not working for example, but most are minor problems. It has its limitations, so that it is not the most advanced C. However, we are waiting, but GST makes that we working on several files. Structures, a facility which provided an IBM to use such facility, but can be considered at the moment. The linker is simple, and on the basis of a word processor to be handled soon. I am very impressed with GST's overall, and would recommend it to anyone.

HIPPO C

Hippo C is an interesting tool. Essentially it seems to be a perfectly good C compiler, the libraries are all there, as is a shell 4.4 B C (except for any ports) and includes an editor. However, it is in the area that make me hesitate in recommending it.

Though your programs can use the GEM libraries, Hippo C is used as a UNIX-like manner. This is achieved with a program called OPS (Hippo Operating System) from which other command programs (LD the editor or batch file) a list of commands in a text file can be run. Now that TOB files will not run, only programs written using Hippo C through Hippo C program can run as normal programs. All the commands are UNIX based, such as LN for directory and CAT for displaying file contents, and HGS behaves as a UNIX type way with standard I/O redirection (though not piping) and if a command file is not found, it is treated as on the IBM subsidiary.

While the standard GEM interfaces are not needed to write for (except with doing it all yourself anyway), it is as the GEM area where GST plays these cards and make it easy to shoot. By using (yet) another library, you can do all of your I/O in a fully implemented window without doing any more programming than you might for a simple window system. It's still a bit tricky, but you can have more than one such window, and then start new graphics at the same way. Up to GST and a masterstroke no less. Well, perhaps it is the best to pay here to see some standard calls which means a re-write of your new compiler it would have been more if you just had to select a different library.

No matter how good a compiler is, you won't be able to make much use of it unless the standard is good too. The GST's overall covers everything it would expect to do. In class's attempt to work you C as a UNIX, but give all the details you need for reference. One of the shell and editor, the compiler capabilities, all the libraries, details of the memory and such on, and a brief description of the assembler are all included. A price \$5 may be a bit high, but (usually associated with higher priced products) sounds off a well thought out and useful man's.

To me, as someone who has never employed UNIX properly (at least a good version) it showed it to be an experienced UNIX user and to be a few "simple" commands. It seemed that the editor is very much like that, and many of the options is consistent, or, meaning, so don't expect too much.

The editor is a reasonable TOB screen mode editor. It makes much use of the function keys but a window is opened. A GEM window based editor would have been a better choice. It is a common practice in UNIX systems to have a standard editor, so that you can keep systems without re-learning the editor. Considering the standard editor is line based, the Hippo editor may be considered to be better, but not for someone who is trying to force UNIX simulation.

The C compiler is normally provided with a batch file, and is a two pass, phrase-compile version. It is complete, but a few of the IBM portable files are lacking, though the user can make these from a C compiler via phraser compiler as is, or it is too long, whatever the system decide, and the portable file definitions allow users to be able to use all compilers by using THE WORDLONG control editor, and can be general to get around the problem. The definitions are held in a file on each system (PORTAB.H) ready for inclusion. The assembler and linker are very basic, designed simply for compiling, if you want to write some assembler you could use it, but a more powerful one (for some I/O) would be better.

The Hippo C manual is very easy and makes it a world if you have. Unfortunately, however, just about everything is skipped, from loading the program through to the library linkage (which are simply the names of the supported run time). All probably need to reference it at first, but it could have been so much better and made the appeal at what appears from the list of some code snippets about a very capable compiler.

One thing that really put me off was the copy protection. I was a bit of a copy protection fan in the past, but I should not work against the language user. HGS was already written and work with the first patch-out version of TOB. This version would have been delivered to all but anyone load DESKTOP INF (the web version default) from drive A. The instruction was to put the Hippo disk on A, your TOB disk on B, and load. When the old TOB is used, every thing else in HGS loads with no problem. With the latest TOB, and the loading of the feature as in both DESKTOP INF from the boot disk (A, or B), you can always always always always. Haha. Try to load HGS and you are told by GEM that the disk is broken and then that you must have the original Hippo disk on drive A, even though that is just what you have! A pain on the work and another it should be. As an alternative you can copy Hippo's DESKTOP INF to your boot disk but I recommend that. Such a new version of TOB may use different patches on the desktop file, and of course a file from another version of may not appear correctly (as I have discovered). While windowing makes work with help from an additional step in the boot, it was a big waste of time for me, and was impressive. The entire disk can be reloaded (as HGS is loaded to see what and how, and all of the files can be copied for backup and regular use).

CONCLUSION: While it is generally a good programming environment it is not a good standard and poor copy protection. There though may be improved in some, especially the linker as it's data developer. Comparing it with GSTC and DRU C as simply a convenience, I would think that GSTC is the better choice, and DRU C (the developer kit) has extensive GEM documentation. However (you are interested in UNIX, then Hippo C is a more useful tool, especially as everything fits more disk. It is certainly quite useful.

(Editor's note: Since this version was written, a second version has been announced which, hopefully, will take care of the copy protection problem.)

SOFTWARE ... all the LATEST...

Software for the ST is now beginning to arrive in force. In this review feature we take a look at several different packages now available.

HABA WRITER Haba Systems £74.95



There are many different types of word processor but most people tend to be impressed by those that have a beautiful and easy interface and still do anything a professional writer might dream of. These are those if you need all the facilities but the simplicity of some don't and the drawback is that the more you have, the more complex the program becomes to use and learn. It can take several weeks to work through a manual and get used to commands.

HabaWriter looks easy commands based on more advanced word processors but when it lacks in facilities it more than makes up for it in ease of use. It really is one of the easiest to use word processors I have yet seen for the ST. The secret lies in the GEM environment which makes use of almost every function very easy. All documents are created as windows which can be deleted to print and you may have up to six windows open at once all processing separate documents. This is ideal if you are writing a document or using another as the basis for an article or letter but it is also a godsend if the phone rings and you want to make a few notes or if you get temporarily sidetracked on another project. Each document shows margins and tabs and you may choose whether to show carriage returns and format markings. The display is less than 50 columns but will scroll across allowing you to work on documents up to 130 columns wide. Movement around the documents is very flexible by using either the mouse or by using keys either singly or in combination. Cut and paste is the simplest I have yet seen and is one of the programs strengths. To mark a block you simply use the mouse to drag an assumed bar over the text until you have highlighted the area you desire. Then simply move the cursor to the appropriate position, pull down a menu and choose from cut, move, paste or copy. Search and replace are equally as easy with a dialog box in which you type search and replacement criteria. You may search forwards or backwards and replace globally if you wish.

More of the other natural functions you would expect are available but the program does not support double column printing, headers and footers, page numbering or section headings and has limited printer control. There are printer configurations file for Epson which will give you underline and bold but not much more. Use on other printers might

be a problem unless Haba plan to release other printer drivers.

So what are the overall impressions? It depends on what your needs are. The majority of people will find HabaWriter an extremely easy to use program which will probably do most of the things they want. Think carefully about your requirements and if you are not likely to use many of the more sophisticated features of word processors such as page numbering, double column printing and the like and would prefer to spend your time using rather than learning to use the program then HabaWriter can be considered excellent. If you need all the whistles and bells then one is not for you.

Footnote: Just as we went to print we received an updated version of HabaWriter, version 1.1, which allows the creation of additional printer drivers as well as the facility to program the keyboard in several different configurations. The main program remains much as before although several small refinements have been introduced.

HABADEX PHONE BOOK

Haba Systems
£59.95



The first in a series from Haba entitled 'Solutions', this program is further titled 'Personal Information Manager and Phone Thru'. It is basically a small database with fixed fields for keeping name and address type information although it can be used for other purposes.

Haba seems to have a policy of producing software that is easy to use and the major strength of the Phone Book is its simplicity for the user. All control, apart from the actual typing of all the information is by the mouse and is really a joy to use. Each record in the file has 16 fields which are set up for name and address, home and business phone, company, title, category, comments and notes. To enter information you merely click at the appropriate field and type away. Once your records are completed you may organize them by any particular field and can call up a summary in alphabetical order with a feature that looks just like those tab index flip-up telephone books. Again very easy. The summary appears in a list of four fields from each record but if you want to see the full information on any record just click the mouse and the full record will appear.

If you need a hard copy of your records, or of particular records, they can be printed out using various criteria for searching. In addition, there is a facility to print mailing labels which is again all mouse controlled and could not be simpler. The final facility is the ability to dial any of the

continued on page 38

Additional software from *Haba*

Haba announces two more packages to complement its range and the power of the ATARI 520 ST.

HABADEX

A GEM based record processing system. Up to 300 records per file. 16 fields per record. Between 10 and 27 character fields. As many files as your disk will hold.

Field names can be changed to suit your applications. Files are memory held for high speed manipulation. "Mouse" driven categories can be mixed, sorted, searched, printed in lists - within ranges or fully printout as full field on 1 line - within ranges or all.

Used as a phone book, with an appropriate auto-dial modem, HabaDEX will even dial your numbers for you.

The fast and powerful records processing system.
£39.95

HABAWRITER

The powerful GEM based word processor. Full use of mouse and pull down menus. Multiple windows and HELP facility.
£19.95

HABA HIPPO-C

An interactive C environment for editing, compiling, linking and running C programs on the Atari 520ST.

HABADISK (10 mbyte)

A 10 megabyte Winchester hard disk. Stores the equivalent of more than 12 standard 800k diskettes.

HABAMERGE

A merge package which enables you to merge sets of data (by name and address) into pre-prepared letters and store the resulting personalised letters on disk or print them. Hab Merge works in conjunction with Habawriter. Both your standard letters and your merge data are prepared using Habawriter.

Additionally, Habamerge will take data from HabaDEX files and merge with Habawriter standard letters, using the power of HabaDEX to select ranges of data to be merged.

Resulting letters are automatically formatted after the merge process. Another powerful tool to complement the power of your ST.

£39.95

These and other Haba products are available at your Atari dealer or software supplier. Please contact them for further information.

Haba
HABA Systems Ltd
14 Greenlands Lane, Prestwood
Or Meadows Bunk, HP16 7DU
Dealer enquiries: 02946 6043
Tel: 037225 82441 G

phone numbers via a Hayes compatible modula modem, just by clicking the mouse on the appropriate number. I have my doubts about the usefulness of this part of the program in the majority of cases in this country but it is there if you want it.

If you are looking for a small database to keep your personal records without having to work out how to set it all up then *Holmes & Duckworth* is ideal. It does have search and sort facilities and can be changed to suit many other record keeping needs, provided they fit within the fixed format, but it will not do anything more complex. Try under the case of use *Weekenders* to see the lack of flexibility but then many people don't need a super sophisticated database. My only other reservation is the price. At £29.95 you may need an awful lot of friends to justify throwing away your old address book!

HOLMES & DUCKWORTH TOOL BOX Vol.1 Manage Concepts £28.95

Another from *Holmes & Duckworth* businessmen' which will be of interest to developers, bankers or just the ordinary user who wants more flexibility in using data with the ST.

The *Tool Box* systemised five very useful programs. First off, there is a *File Secure* utility which enables you to change information on any file on a disk or on a sector. Most owners will have had some experience of using a disk editor and will know the many things that can be done from simply playing with programs rates to increasing garbled files. The *secure* works with a command level of GEM and the keyboard and is very easy to use. Following on from this there is *Memory Editor* which allows access to any area of RAM for changes to information. Again this is easy to use but is only of interest to the more experienced programmer.

The remaining programs are useful to anybody and will be a blessing to your collection of programs built up. *Fast Format* and *Copy* does just that, it copies an unformatted disk as just one minute forty seconds with two drives without having to format the destination disk first. It is very convenient to use and you will certainly see go back to using GEM to first format and then copy a disk. *Deleted File Recovery* is one that you may never see but when you do need it you will be glad to have it. Basically it is a rule to recover any file which you have unintentionally 'trashed'. One of the problems with GEM is that there is no way out of the rubbish bin! Sometimes it is not possible to recover the whole of a file but this utility will collect you to recover at least 75% and in many cases the whole file. Even if it is better than nothing especially with data files.

To round off, *Express Directory Fast*. One of the biggest disadvantages of GEM on the ST is that someone forgot to include a facility to print directories. Now you can create a 'directory file' in your data which can be printed out from the program or loaded into a word processor for editing. You can even use this to create a master directory of all of your data and so have almost a catalogue facility—I can see that I will use this time and again.

All in all, a very useful collection of utilities which will benefit most users, especially those who waste their own programs.

K-SPREAD Kuxma £49.95



If you look at the 238 plus page manual for VIP, *Professionals* if used then compared to the ST page orientation booklet for *K-SPREAD* you might be forgiven for dismissing *K-SPREAD* out of hand. But hold on a minute, don't be so hasty, you might be missing an excellent program and it could be the one for you.

K-SPREAD is a straightforward spreadsheet, nothing more, nothing less. It does not support colours or keyboard macros, printing, database utilities or the like but has many ordinary people or even small businesses really need all the power of the fully integrated professional packages! The real bonus of *K-SPREAD* is that it is so easy to use. There are no messy key stroke sequences to remember and very little need to refer back to the manual once you have learned the basics. Apart from data entry, almost all aspects of the program are controlled by the mouse, and even so many you won't believe it. Want to change column widths? Just push the columns and extend it to the desired width, no need to work it out. Change just the one column or all. Want to duplicate some headings? Click them and move them to another column. Likewise with figures and formulas. When you move columns or rows that have formulas, you are asked if you require formula recalculation and then why it is easy to set up a number of formulas without extra keyboard entry. One word of warning though, check the formula you have just created for it may not be exactly as you thought. Not really a bug, more of a case of insufficient planning on your part.

I do not have room to explain the various uses of the spreadsheet but most financial requirements of the home user and small businesses can be accommodated by *K-SPREAD*. The worksheet has a capacity of 8000 rows by 256 columns, limited only by the memory of your machine. In practice, with TOS on disk, *K-SPREAD* gives you just over 1000 compared with just 300 on VIP at present. There is adequate cursor control between cells and the basic functions needed for row or column calculation. Copying via GEM is excellent and files can be saved or merged with other data as well as printed out. One very good feature is the ability to open up a total of five windows at any one time so that you can see what is going on in different parts of the spreadsheet. The worksheet can be viewed in two different sizes although the smaller of the given sizes does strain your eyes a bit.

Printing is one of the areas to which *Kuxma* has paid a lot more attention than most, for *K-SPREAD* allows you to send control codes to your printer from within the program or set up your own printer configuration file. The Epson configuration is supplied, naturally, but it is good to find a software manufacturer who recognises that there are other printers, or who is not too lazy to bother with such 'unnecessary' files.

I must admit that, having seen the power of VIP, I was really in doubt re *K-SPREAD* but I am very impressed, particularly with its ease of use. Highly recommended as a 'starter' spreadsheet and if you want to go on to printing and data handling, *Kuxma* will have complimentary pack agree to that extent. *K-SPREAD* might do all you want, so why pay a higher price for all the bells of Lotus 1-2-3 when you may never see them?

HIPPO BACKGAMMON

Hippotamus Software
£39.95



Backgammon is one of those simple games that either are so very boring or beside you completely. If you already know the rules and fancy sharpening up your play then Hippo Backgammon can be highly recommended. If you are a complete novice you will find a full explanation of the rules on the disk but it may first be worth buying a cheap backgammon board game to see if you like it.

Although a fairly simple game I find it fascinating and I have had many hours of enjoyment with this version. The game is essentially a solitaire game where you play against one of two computer 'opponents'. The strength of the program is that you can alter the 'intelligence' of the robot by altering or creating files called 'Novices' and 'Gorilla'. If you want to study the strategic importance of various moves and to see how the robot 'thinks' you can call up these details. Several parameters in the game can be altered. The program works in mono or colour and the colour version gives a choice of five colour layouts which is good as the dice all colours are white! You can change sides in a game, reset your own dice rolls to test play, 'undo' moves apart on back and watch as the two robots play each other. The graphics are excellent and animation of the pieces good. Control of the dice and pieces correctly with the mouse making play very easy.

Overall the game is excellent but there are one or two design problems. It is difficult to know at first exactly how to get started. You do not throw the dice but simply accept the value of the dice at the start of the game as your first move. Placement of the pieces has to be quite precise and if a piece won't 'go' where it should you begin to wonder why. To make the robot play you click on the dice, (your throw is done automatically at the end of the robot's turn), but this can be confusing as occasionally you need to click the dice (making it your turn only to lose your throw). Another problem is that the rules of backgammon state that you must move if possible but it is quite easy to cheat (even accidentally) by forcing the robot to play again if it is to your advantage not to move. Provided that you play to the rules, these problems will not cause too much bother but they should have been dealt with at the testing stage.

To sum up, if you like solitaire games or are hooked on backgammon, Hippo Backgammon can be highly recommended. You will certainly learn to play better and with the ability to change the way the robot play you can go a lot deeper, if you wish, than with a straightforward board game.

THE CRIMSON CROWN

Polarware (Penguin Software)
Requires Colour Monitor
£39.95

Don't take a look at Gerry Praeger's Adventure column in the magazine. He mentions that Transylvania has a sequel called The Crimson Crown due for release and worth a look at it - but on the ST!

The Crimson Crown is subtitled 'Further adventures in

Transylvania' and Gerry's column will give you sufficient background to know what to expect. Based on the package as a game (single adventure mode) which understands full and multiple-verb commands with a vocabulary of over 100 words, it is an interesting adventure but it is not in the class of Infocom. The package is nicely presented with a journal and map and a few other bits and pieces and the program has some nice touches. It uses the mouse, with keyboard alternatives, for movement by clicking on the appropriate compass point, and for loading, saving and quitting games as well as hitting the hot key moves. The pictures can be touched out to reveal more text and the mouse control makes it very comfortable to play. The keyboard itself seems used for all other instructions which are accepted as in a conventional adventure.

I haven't played too far through the adventure so I cannot comment on its complexity or otherwise but it is certainly enjoyable with puzzles that are definitely not as complex as Infocom's Expert level! The most disappointing aspect is the graphics. Don't get me wrong, they are good, but no better than on an 8-bit system and hardly live up to the bon-dazzle of 'occasionally detailed'. There are essentially five drawings in colour with the appropriate colour fills and the only difference between them and an Amiga like Graphics II display is that true colours can be used instead of attributes.

If you are looking to buy this for some stunning graphics then you will be sorely disappointed. As an adventure it is sufficiently interesting and slightly better than on the 8-bit systems. Certainly the mouse control adds that little bit of finesse. Definitely one for Adventure addicts but Graphics freaks should wait awhile.

SPELLBREAKER

Infocom
£39.95



Now you didn't really expect me to finish an Infocom Expert levelled venture in the few days before eggs doubling did you? Suffice it to say that Spellbreaker is the third and final part of the ENCHANTER trilogy and has all the detail and intrigue you have come to expect of Infocom.

Magic is the very core of existence for an Enchanter but so is magic itself (as being 'Who? That is for you to discover and really if you can. You start at a meeting of the Circle of Enchanters where complaints are being aired about Dabene of all kinds of things. You know exactly to the argument and debate when suddenly, before your eyes, each of the Enchanters turns into a man, salamander or frog! You are just in time to see a shadowy figure rush out of the door, you follow and the adventure begins.

Infocom on the ST plays very well with a full 128k of story in memory, fast response and an 88 column display. Of course, being text only the basic presentation is no different but you don't need it to be. In a good book you don't look at the typestyle or the layout, you just read the story, if it is interesting enough, and Infocom know how to come up with an interesting story.

If you have played Infocom before you will almost certainly start this one. If you are just beginning, however, there is a strong magic and mind-boggling puzzle element at Expert level.

BRATACCAS

Pythagoras
£94.95



Here is last you have it, the enigmas, the 'mash' of PCW, the game that many have said isn't a new standard, that is even worth buying on ST for. So is it as good as it that has been heralded? Well before I give you my opinion let me say straight out that I hope I'm not right off. I refuse to go and see all the lines that are 'blockbusters' before they are even released or buy something simply because a few journalists and TV people were slightly impressed by all the fuss that is a promotional launch. From this point of view I found it hard to be objective about Brataccas. At first sight I was quite disappointed, but I put my new card in a couple of few weeks later and was quite impressed.

It is a good game and somewhat different from any you have seen before. It does have a certain feel about it with some excellent animation and fine control of your player and it does have challenges aplenty to keep you occupied. You will not quickly solve the mystery of Brataccas. Firm off, you will need to learn how to control Elysia the central character. This can be by joystick, keyboard or mouse but the latter gives the finest control. Elysia can have four basic stances, facing left or right, away from or facing the screen. In each of these stances, movement can be manual, as in walking or running or automatic, as in lighting. Additionally there is a emphasized movement and double movement which each achieve a different reason. Control is fine and difficult to master but the sheer skills in the complexity and challenge of the game. The plot is simple. You have been accused of a crime you did not commit and set out to prove your innocence in a strange world called Brataccas. You will meet many adventures, human and otherwise and will have many puzzles to solve, at least of which other told who is your quest and who is your friend. You will be introduced the manual thoroughly which is as much a work of art featuring characters by Roger Dean famous for the Yes album covers.

Brataccas begins with an excellent loading sequence as it means played throughout the load and continues with good graphics and excellent action but there is somehow something missing about the look of it. Maybe it looks too much like a conversion from the QJ. Maybe it is just all the hype getting me off.

So is it as good as they say? Well, it is very good, but it is by no means the definitive game on the ST. This is not early days and there will be many games coming along that will make people wonder what all the fuss was about.

HOLMES & DUCKWORTH FORTH

Mirage Concepts
£49.95

This is a new version of FORTH presented in a more friendly way by Chester Holmes and Oliver Duckworth. It comes in a simple box the size of a 16" disk without a manual. The full instructions are on the disk but you will almost certainly need a printer to take it all in.

This FORTH was developed by Holmes and Duckworth for use in developing their own commercial software and is released to encourage others to develop software for the ST. A full run time system is included at no cost which means that you can sell any software developed with the package without payment of royalties. All that is requested is a simple credit in the program. FORTH can be used to develop code for many applications from Artificial Intelligence to graphics, games and business applications. This version was developed specifically for the ST and allows full access to all of the ST 68000 commands and supports the graphics, math and pointer commands of TOS. The authors claim that this version will give developers greater access to the many features of the ST. The source for many of the FORTH 'wonder' is included along with information for those who have Atari's development software but, providing you know the FORTH language, the program can be used without access to other software. Many other FORTHs run a 16-bit stack which gives access to only 64k without special programming but this version has a 32-bit stack allowing access to all of the ST memory and is completely relocatable.

Although the instructions give some general background on FORTH, it is stressed that there is no tutorial included and you must already know FORTH or be prepared to purchase an appropriate textbook. Details of a few recommended titles are included. I must be honest and say that I am not qualified to test FORTH to any depth but with this version being based on the more recent version of FORTH and being not unacceptably friendly for the ST, it looks to be a good bet for anyone interested in a fast, easy to use language.

HABAWRITER MAIL MERGE

UTILITY

Haba Systems
£39.95

This is the utility that will merge together HabaWriter and the Habawriter PhotoBook. If you wish to write to any or all of your own sets held in your Habawriter PhotoBook just create a letter with Habawriter, inserting the appropriate fields from the PhotoBook and print away. You may choose to include or exclude certain records by searching up different criteria. Printing of documents is controlled by the utility so all you need to do is save your letter and the PhotoBook file on the same disk. If you do not have the PhotoBook, don't worry, the program will create your name and addresses as a HabaWriter file.

Printer control is quite good as you can change the Epson printer driver supplied to suit your own printer by loading it in Habawriter and changing the video. Other printing selection such as length of lines, font size or what are selected with the mouse.

Using mail merge is not as difficult as many people think and if you have not used it before you will be surprised at how good the 'personal' standard letter looks. ●

Most of the software for the review features was kindly supplied by Software Express in Birmingham. Telephone 021 326 3343

micro

ATARI ST MicroTron

LANDS OF NAPOC From *Microtron*
By Steve Bell. MicroWorld's 2000.
Screen scrolls adventure with its full colour maps, the Peak of Chicago and Sator, but residents here, are full basic workloads as the first Mega-gate is revealed for the treasure. Superb full colour graphics, treasure path screen and written in 32K machine code. Expanded version in CD-ROM.

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FLIP SIDE From *Microtron*
This 3D/32bit flip game combines Chess-like strategy with the ease for an excitement all of its best. Surround an opponent's piece and FLIP IT over! This simple rule leads to strategies as detailed as your imagination. For 2, 3 or 4 players. 2 levels of difficulty.

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Full rate on both colour & black and white systems.

Available at **ATARI SHOW**



M-DISK From *Microtron*. A RAM-DISK emulator uses a portion of your computer's memory to fast, store and save data. IT ACTS LIKE A NORMAL DISK, BUT... has no mechanical parts. M-DISK is software based and can utilize up to 800K of memory if it is available. M-DISK is super fast, stored by touch, and safe.

ONLY £12.95

SOFT SPOOL
From *Microtron*

While grinding files from a word processor, TOS, etc., your computer is simply dead weight. Get up waiting for the printer to finish. However with SOFT SPOOL, the wait is over! NOW YOUR COMPUTER CAN EVENT AND THINK AT THE SAME TIME!

The software spooler sends printed data to the printer. Software feeds the printer. The Computer to more important things like playing software, etc., and saves you literally hours of computer time. An excellent utility and



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Now the previously mentioned utilities available in 1 mighty volume. You find! Details both manuals plus 1 disk.

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TIME BANDIT by *Tim Dorey's Atari Computer from Microtron*
Banks 100 Diamonds in 900 try to escape with the treasures of Time. QuickDraw mode even lets two play simultaneously, each on his own island.

Visit the Timegates to visit over 20 unique adventures, each with over 10 levels each! Superb medieval graphics, custom fonts, and huge worlds all in one game!

Unique features and 3-D terrain set this Time, detailed 3D-style terrain, detailed characters, 3D-style terrain, and music, hundreds of enemies, the essence of Time's 100 Gates world you!

For the best ST with color monitor **£29.95**

M-COPY by *Timothy Powers of Software*
Designed for duplicating program disks, M-Copy eliminates the need to make copies and ensures that the operator will never when a copy fails.

After the source disk is copied into memory and checked, the operator has to do as you'd think.

M-COPY merely through disk operation because it formats and copies only those tracks needed by the software, instead of wasting time on the rest of the disk. M-Copy makes use of the rest disk. For the best ST a must for computer copying disks in bulk.

£49.95

UTILITIES by *Timothy Powers from Microtron*
Need control over your Atari ST files, even when things go wrong with an editor or printer. Individual Bytes, you can change the contents, change the size, rename, format, storage, the attributes, format individual, can locate, copy individual, search, remove deleted files, recover data from damaged disks and repair damaged disks.

Utilities works with the DOS interface to provide easy, menu driven operations. Changing file contents, attributes or names is just a matter of typing in the file information or clicking on helpful options.

Files remaining deleted, the only option that you cannot delete, then drive on a system to name or repair a. Double-clicker copy and track-by-track format routines let you gently handle damaged disks.

For the best ST **£39.95**

DISK HELP by *Steve Bell from Microtron*
If your disk has crashed and you're not an experienced programmer able to repair it with UTILITIES, then this easy to use menu-driven program will attempt to repair the disk and bring back lost data. This program will format a disk without erasing it. It will re-write the directory, check a disk and list bad sectors, re-write files with bad sectors so they become readable, re-format the disk, and more. If you see files from your old ST, you should check to see whether DISK HELP is able to read off 1 or 2 single or double sided drives.

£29.95

Microtron software is available from
MICRODIAL
At four other outlets

Post & Packing 75p per order.

41 Topp Road, St. Asaph, Conwy, LL23 5JL, England.
Telephone: 0755 89200 Telex: 40718 MIC-ROD G



PRINTSHOP

Broderbund

Can a Disk Drive? Can a Dot Matrix Printer? You have, therefore, an idea of how difficult it is to cover the page with a review that just let the one to confirm your decision to acquire them.

Since the beginning of last year, before Acornware across the pond have been coming about Broderbund's business selling software for some months. You've probably seen it, Print Shop. Available in disk only, it's now here in the country, still in its original packaging of yellow box, shiny page well written manual, plenty sheets of colored dot-matrix paper, envelopes to match and a host of peripheral pieces of paper all which are superfluous in this country, so with a noisy American import.

EASY TO USE

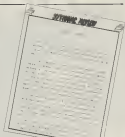
From booting up the disk to printing out complex patterns, letterheads, greeting cards, signs and even business up to thirty list files, the simplicity of use makes PrintShop a joy to use. In fact the first page of the manual recommends you ignore the booklet and start printing straight away, and when it says you?

Meanwhile, the program allows you to configure the printer your printer requirements. Print Shop will work with most dot-matrix printers but not with the quality types. Once the printer setup has been configured then you no longer need to return to that option unless you use a different printer. Taking you through the menu options displayed are Greeting Card, Sign, Letterhead, Banner, Screen Page and Graphics Editor. All except the Screen Page and Graphics Editor for you are any of the forty-one and eight different fonts included on the disk. The Screen Page option can be fine-tuned only and the Graphics Editor, once only. Both the Greeting Card and Sign options also allow the user to design business. All that can be in three styles, Solid, Outline and 3-D.

Oh yes, as you know when Print Shop has got lists on what it can do. If you've always admired the graphic quality of professional letterheads but never been able to afford it, now you can. With a menu of the same design, then Print Shop will allow you to create your own using any of the above fonts and fonts. Text can be centered, justified, left or right, for both top and bottom of the page. Lines can also be used for both top and bottom of the page. There are numerous third effects or both a corner in the same time. There are three lines for both top and bottom to place any message you like but that can only be done in the normal A4 size font.

GREETING CARDS

Greeting Cards are another option available. Again you design your own (this is probably the easiest throughout the whole program) or in this part you can download the computer to design one for you. The cards are only small, made up from a sheet of A4 paper folded into four. Select from the borders, colors and fonts to personalize your greetings. When printing the result appears upside down which has no manual at first but with a quick look at the manual I concluded that it was working correctly and so I folded a card when on the normal appearance of a card. I felt that it would be much better if it could print out across the page folding the page to



two. This of course would need to be put through the printer twice (once either side) to create the desired effect. The cards, incidentally, look much better on colored paper than plain white.

The program really comes into its own with the Sign option. Like the other modules, standard A4 paper is used, if I had to choose a favorite part of the program, this would be it. Select your border and then in any of the ten fonts, design your layout of words depending on what size you choose, then emphasize the points by adding your message. Against any of the eight fonts. You can also in the range select large or small print. By using one of the patterns, you can create ornamental looking signs by using the scroll layout, then superimposing your text. Using three points is really an interesting way of producing your signs or giving the message across whether it's points or positively disgusting.

Talking about getting the message across, we come to the Banner option which can print any message up to 14 feet long, from one to selected anywhere on the banner and all the fonts and styles are available. Banners of different fonts can be created by mixing small banners together for a really smart looking message.

THE GRAPHIC EDITOR

The Graphic Editor supports both screen and touch tables as well as mouse control. Creating your own signs with the touch table is also an option, at least it is sometimes quite handy. The drawing area consists of an 11 x 19 grid which makes my design rather simple. The Editor is my opinion is rather cumbersome, I succeeded first that it was chosen as an afterthought, however having said that it is a welcome addition to the program. Should you feel adventurous enough to design your own signs then modifying the original is a good possibility, also creating your own messages. Other comments in this section include three disk, load, save and print. Only signs can be colored and when printed from the editor window are only small size.

An unusual feature of Print Shop is the Screen Page module.

This module is a bit of a puzzle as rather twenty-five lines of text which can be swapped, frozen, moved to disk, relocated and printed out. In a way it is really a separate part with only the fonts available from the main part of the program. Text can be superimposed on any background as one of the available fonts. In the print out, the use of the dump only fills half a page and you select either the top or bottom half of the page. Nevertheless, even doing it this is included in the option. A menu-OS is available which lets you format the disk to save your screen message page. So for the screen is for the first usual part of the program but perhaps the one with the most potential.



reviewed by Alan Goldsbro

CONCLUSIONS

To run up Print Shop as a free word is an impossible task. Without any doubt as one of the best programs available for the time. It's ideal for any club, group, association or even individual who wishes to get the best out of their printer and processor. It might be easier to put some of your photos under lockage. It's quite easy to get ideas about any programme once you begin to master it but Print Shop, as good as it is, still leaves you wishing it could do more. The good points include the ease of use throughout the whole program, all the modules are superb but each could do with a little extra. One issue facing us as a writer is to print labels in a module on its own. The only way I found this could be done was to use the Graphic Editor and dump the same data to the label one at a time, then reload the label on the printer and using a basic or commercial program just type the copies on the label. Yes I know it's time consuming but the only way round it is to create another label is not being able to save your own page design to disk. This may not seem much of a problem but it's a little annoying having to build up your design every time and then. With the disk being double sided, swapping it back and forth is one of the hassles you have to put up with, and you without a comprehensive program this really is to be expected. I was disappointed with the Graphic Editor's inability to produce high quality text (or was it my stability?) and also not having the opportunity to design or modify the font and buffers.

In general this is an excellent program which has given birth to a number of clones (some of which I'll review at a later stage) and I'm sure Print Shop will have immediate appeal to all printer owners. My children played me to print out more and more soon as they can collect them so I hardly get chance to use it myself!

On the necessary floppies are three disk disks each containing 128 new fonts which can be purchased separately at £22.99 each. For full paper fonts we also available although I am not sure who would want to pay £29.99 for a when you can purchase a ream of coloured paper for less than £7 from any good stationer. Asim Magazine have also produced a conversion program to download MacDraw and MacDrawPlus files to Print Shop format. This should go some way to expediting any frustration of the Graphic Editor.

Finally a word of warning, Print Shop is set up for the XL/XXL models and although it works normally most times on the pre V1 400/486 it can behave a wobbly and spoil your design on these older models. Don't be too put you off though, it's still a great program.

The price is £29.99 which may seem a little high but you'll never get a word in my thanks go to York Computer Centre for supplying the disk. I have not reported buying it and I am sure you won't.



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DISPLAY LISTS Pt.3

SCROLLING

One of the most spectacular effects possible on any micro is line scrolling. I recently read a review for a BBC micro program in which the line scrolling was praised. The reviewer went on to say that this effect had avoided the shifting of more than 20,000 bytes! The same scrolling could be achieved on an Atari by manipulating just a couple of status bytes as the Atari has almost hardware scrolling — a feature otherwise found on much more expensive machines. As you will know, scrolling can take place in two directions, horizontal and vertical (the frequently seen diagonal scrolling is a combination of the two). Let us consider vertical scrolling first, as it is slightly easier to implement than the horizontal effect.

Generic scrolling (the type you see when LISTing a BASIC program) is easily achieved by manipulation of the DL, as demonstrated in Listing 17. If you have followed and understood this article so far, you should find it easy to see how this program works. It first prints the display as easy to the lowest RAM of the Atari then causes scrolls over the exact memory space of the computer. You will remember that the LMS instruction at the start of any DL points to the first byte of screen memory, which is displayed at the upper-hand corner of the screen. By adding the number of bytes used in one mode line (90 bytes in the case of Omode 0) to the LMS operand bytes we cause the display to move up by one line. Repeating this process makes the display scroll upwards.

Now generic scrolling is not particularly attractive, and it would be much better if we could scroll over a smaller distance, such as one screen line at a time. The Atari provides the facility to do just this — the register VSCROL at location 24277 (D485 hex). POKing this register with a number from zero to 16 causes the display to scroll over that number of screen lines. However, when line scrolling using this register, you must carry out one further step, that is to set the vertical first scroll line in the DL. This is done by adding 32 to the instruction code through mode line you wish to scroll. Unless you do this, altering VSCROL will have no effect. Note that you do not need to set the vertical scroll bit on every mode line, unless of course you want the whole screen to scroll. Once this is done, increasing VSCROL scrolls the screen upwards, decreasing VSCROL scrolls the screen down.

There is however one snag, which you may already have spotted. VSCROL can only be POKed with a number of 16

A tutorial by Steve Pedler

or less. How then do we scroll over a larger distance than 16 screen lines? The solution is in fact quite simple. We first scroll over the number of screen lines needed to make up one mode line (using VSCROL) then reset VSCROL and complete the scroll by carrying out a coarse scroll. In case that isn't entirely clear (?), Figure 2 should provide additional clarification. I am sure that many of you will have seen this little diagram or something similar in other articles on scrolling, but I repeat it here as it is so useful.

Downward scrolling is achieved by reversal of the process. Set VSCROL initially not to zero but to the number of screen lines making up one mode line (see Table 1) then decrement VSCROL to one. The scroll is completed by decrementing the LMS operand bytes by the appropriate number, resetting VSCROL at the same time.

You can line scroll from BASIC but the results are not particularly good. Listing 18 is an example. The program first sets the vertical first scroll line on every line in the DL (line 90) and then scrolls the display using combined line and generic scrolling as described above. Surprisingly you will notice a couple of problems. Firstly, if you look carefully you will see that the bottom line of the display does not scroll on properly but jumps into place. This could be avoided very easily by not setting the vertical first scroll bit on the last line of your

```

90 10 REM *****
91 20 DL=0
92 30 POKE 24277,16
93 40 POKE 24276,0
94 50 POKE 24275,0
95 60 FOR I=0 TO 40:PRINT I
96 70 GOTO 40

```

Listing 17

```

90 10 REM *****
91 20 DL=0
92 30 POKE 24277,16
93 40 POKE 24276,0
94 50 POKE 24275,0
95 60 FOR I=0 TO 40:PRINT I
96 70 GOTO 40

```

Listing 18

scrolling display (in this case, the bottom line of the screen). This allows the last line to act as a buffer for the next line to scroll in. To do this, change the FOR...NEXT loop in line 40 to read FOR J=4 TO 27, then rerun the program. The last line now scrolls smoothly into place.

Secondly, notice that frequently the screen jumps or flashes. This is an unavoidable effect of line scrolling from BASIC and occurs when VSCROL is changed while the screen is being drawn. This distracts Ansa's memory controller and causes the application to flash. The only solution is to change VSCROL during the vertical blank period, which can only be done in machine language. If you now add Listing 19 to Listing 18 you will finally get a smooth line scroll demonstration. This is a simple VBI routine to scroll the display, and the assembler source code is provided in Listing 20.

This demonstration does however show one last problem associated with vertical line scrolling. As you watch the display, you will see that every so often the display suddenly changes. This is due to the limitations of Ansa's memory controller discussed earlier in this article, namely that it cannot cross a 4K memory boundary. In a real application, if you wanted (and you probably would) to scroll over an area of greater than 4K, then one way around the problem would be to organize the screen memory in discrete blocks starting at 4K RAM boundaries. Thus, as you approach the end of a 4K block, you would change the LMS operand by ten the 00 to point to the next block, thus resetting the memory controller. Of course, you would have to ensure that the first screen of the new block was the same as the last screen of the previous block or the picture would appear to suddenly change completely!

```

02 10 FOR J=1 TO 27:PRINT:NEXT J
03 20 FOR J=0 TO 25:PRINT:NEXT J
04 30 FOR J=0 TO 25:PRINT:NEXT J
05 40 FOR J=0 TO 25:PRINT:NEXT J
06 50 FOR J=0 TO 25:PRINT:NEXT J
07 60 FOR J=0 TO 25:PRINT:NEXT J
08 70 FOR J=0 TO 25:PRINT:NEXT J
09 80 FOR J=0 TO 25:PRINT:NEXT J
0A 90 FOR J=0 TO 25:PRINT:NEXT J
0B AA FOR J=0 TO 25:PRINT:NEXT J
0C AB FOR J=0 TO 25:PRINT:NEXT J
0D AC FOR J=0 TO 25:PRINT:NEXT J
0E AD FOR J=0 TO 25:PRINT:NEXT J
0F AE FOR J=0 TO 25:PRINT:NEXT J
10 AF FOR J=0 TO 25:PRINT:NEXT J
11 B0 FOR J=0 TO 25:PRINT:NEXT J
12 B1 FOR J=0 TO 25:PRINT:NEXT J
13 B2 FOR J=0 TO 25:PRINT:NEXT J
14 B3 FOR J=0 TO 25:PRINT:NEXT J
15 B4 FOR J=0 TO 25:PRINT:NEXT J
16 B5 FOR J=0 TO 25:PRINT:NEXT J
17 B6 FOR J=0 TO 25:PRINT:NEXT J
18 B7 FOR J=0 TO 25:PRINT:NEXT J
19 B8 FOR J=0 TO 25:PRINT:NEXT J
1A B9 FOR J=0 TO 25:PRINT:NEXT J
1B BA FOR J=0 TO 25:PRINT:NEXT J
1C BB FOR J=0 TO 25:PRINT:NEXT J
1D BC FOR J=0 TO 25:PRINT:NEXT J
1E BD FOR J=0 TO 25:PRINT:NEXT J
1F BE FOR J=0 TO 25:PRINT:NEXT J
20 BF FOR J=0 TO 25:PRINT:NEXT J
21 C0 FOR J=0 TO 25:PRINT:NEXT J
22 C1 FOR J=0 TO 25:PRINT:NEXT J
23 C2 FOR J=0 TO 25:PRINT:NEXT J
24 C3 FOR J=0 TO 25:PRINT:NEXT J
25 C4 FOR J=0 TO 25:PRINT:NEXT J
26 C5 FOR J=0 TO 25:PRINT:NEXT J
27 C6 FOR J=0 TO 25:PRINT:NEXT J
28 C7 FOR J=0 TO 25:PRINT:NEXT J
29 C8 FOR J=0 TO 25:PRINT:NEXT J
2A C9 FOR J=0 TO 25:PRINT:NEXT J
2B CA FOR J=0 TO 25:PRINT:NEXT J
2C CB FOR J=0 TO 25:PRINT:NEXT J
2D CC FOR J=0 TO 25:PRINT:NEXT J
2E CD FOR J=0 TO 25:PRINT:NEXT J
2F CE FOR J=0 TO 25:PRINT:NEXT J
30 CF FOR J=0 TO 25:PRINT:NEXT J
31 D0 FOR J=0 TO 25:PRINT:NEXT J
32 D1 FOR J=0 TO 25:PRINT:NEXT J
33 D2 FOR J=0 TO 25:PRINT:NEXT J
34 D3 FOR J=0 TO 25:PRINT:NEXT J
35 D4 FOR J=0 TO 25:PRINT:NEXT J
36 D5 FOR J=0 TO 25:PRINT:NEXT J
37 D6 FOR J=0 TO 25:PRINT:NEXT J
38 D7 FOR J=0 TO 25:PRINT:NEXT J
39 D8 FOR J=0 TO 25:PRINT:NEXT J
3A D9 FOR J=0 TO 25:PRINT:NEXT J
3B DA FOR J=0 TO 25:PRINT:NEXT J
3C DB FOR J=0 TO 25:PRINT:NEXT J
3D DC FOR J=0 TO 25:PRINT:NEXT J
3E DD FOR J=0 TO 25:PRINT:NEXT J
3F DE FOR J=0 TO 25:PRINT:NEXT J
40 DF FOR J=0 TO 25:PRINT:NEXT J
41 E0 FOR J=0 TO 25:PRINT:NEXT J
42 E1 FOR J=0 TO 25:PRINT:NEXT J
43 E2 FOR J=0 TO 25:PRINT:NEXT J
44 E3 FOR J=0 TO 25:PRINT:NEXT J
45 E4 FOR J=0 TO 25:PRINT:NEXT J
46 E5 FOR J=0 TO 25:PRINT:NEXT J
47 E6 FOR J=0 TO 25:PRINT:NEXT J
48 E7 FOR J=0 TO 25:PRINT:NEXT J
49 E8 FOR J=0 TO 25:PRINT:NEXT J
4A E9 FOR J=0 TO 25:PRINT:NEXT J
4B EA FOR J=0 TO 25:PRINT:NEXT J
4C EB FOR J=0 TO 25:PRINT:NEXT J
4D EC FOR J=0 TO 25:PRINT:NEXT J
4E ED FOR J=0 TO 25:PRINT:NEXT J
4F EE FOR J=0 TO 25:PRINT:NEXT J
50 EF FOR J=0 TO 25:PRINT:NEXT J
51 F0 FOR J=0 TO 25:PRINT:NEXT J
52 F1 FOR J=0 TO 25:PRINT:NEXT J
53 F2 FOR J=0 TO 25:PRINT:NEXT J
54 F3 FOR J=0 TO 25:PRINT:NEXT J
55 F4 FOR J=0 TO 25:PRINT:NEXT J
56 F5 FOR J=0 TO 25:PRINT:NEXT J
57 F6 FOR J=0 TO 25:PRINT:NEXT J
58 F7 FOR J=0 TO 25:PRINT:NEXT J
59 F8 FOR J=0 TO 25:PRINT:NEXT J
5A F9 FOR J=0 TO 25:PRINT:NEXT J
5B FA FOR J=0 TO 25:PRINT:NEXT J
5C FB FOR J=0 TO 25:PRINT:NEXT J
5D FC FOR J=0 TO 25:PRINT:NEXT J
5E FD FOR J=0 TO 25:PRINT:NEXT J
5F FE FOR J=0 TO 25:PRINT:NEXT J
60 FF FOR J=0 TO 25:PRINT:NEXT J
61 00 FOR J=0 TO 25:PRINT:NEXT J
62 01 FOR J=0 TO 25:PRINT:NEXT J
63 02 FOR J=0 TO 25:PRINT:NEXT J
64 03 FOR J=0 TO 25:PRINT:NEXT J
65 04 FOR J=0 TO 25:PRINT:NEXT J
66 05 FOR J=0 TO 25:PRINT:NEXT J
67 06 FOR J=0 TO 25:PRINT:NEXT J
68 07 FOR J=0 TO 25:PRINT:NEXT J
69 08 FOR J=0 TO 25:PRINT:NEXT J
6A 09 FOR J=0 TO 25:PRINT:NEXT J
6B 0A FOR J=0 TO 25:PRINT:NEXT J
6C 0B FOR J=0 TO 25:PRINT:NEXT J
6D 0C FOR J=0 TO 25:PRINT:NEXT J
6E 0D FOR J=0 TO 25:PRINT:NEXT J
6F 0E FOR J=0 TO 25:PRINT:NEXT J
70 0F FOR J=0 TO 25:PRINT:NEXT J
71 10 FOR J=0 TO 25:PRINT:NEXT J
72 11 FOR J=0 TO 25:PRINT:NEXT J
73 12 FOR J=0 TO 25:PRINT:NEXT J
74 13 FOR J=0 TO 25:PRINT:NEXT J
75 14 FOR J=0 TO 25:PRINT:NEXT J
76 15 FOR J=0 TO 25:PRINT:NEXT J
77 16 FOR J=0 TO 25:PRINT:NEXT J
78 17 FOR J=0 TO 25:PRINT:NEXT J
79 18 FOR J=0 TO 25:PRINT:NEXT J
7A 19 FOR J=0 TO 25:PRINT:NEXT J
7B 1A FOR J=0 TO 25:PRINT:NEXT J
7C 1B FOR J=0 TO 25:PRINT:NEXT J
7D 1C FOR J=0 TO 25:PRINT:NEXT J
7E 1D FOR J=0 TO 25:PRINT:NEXT J
7F 1E FOR J=0 TO 25:PRINT:NEXT J
80 1F FOR J=0 TO 25:PRINT:NEXT J
81 20 FOR J=0 TO 25:PRINT:NEXT J
82 21 FOR J=0 TO 25:PRINT:NEXT J
83 22 FOR J=0 TO 25:PRINT:NEXT J
84 23 FOR J=0 TO 25:PRINT:NEXT J
85 24 FOR J=0 TO 25:PRINT:NEXT J
86 25 FOR J=0 TO 25:PRINT:NEXT J
87 26 FOR J=0 TO 25:PRINT:NEXT J
88 27 FOR J=0 TO 25:PRINT:NEXT J
89 28 FOR J=0 TO 25:PRINT:NEXT J
8A 29 FOR J=0 TO 25:PRINT:NEXT J
8B 2A FOR J=0 TO 25:PRINT:NEXT J
8C 2B FOR J=0 TO 25:PRINT:NEXT J
8D 2C FOR J=0 TO 25:PRINT:NEXT J
8E 2D FOR J=0 TO 25:PRINT:NEXT J
8F 2E FOR J=0 TO 25:PRINT:NEXT J
90 2F FOR J=0 TO 25:PRINT:NEXT J
91 30 FOR J=0 TO 25:PRINT:NEXT J
92 31 FOR J=0 TO 25:PRINT:NEXT J
93 32 FOR J=0 TO 25:PRINT:NEXT J
94 33 FOR J=0 TO 25:PRINT:NEXT J
95 34 FOR J=0 TO 25:PRINT:NEXT J
96 35 FOR J=0 TO 25:PRINT:NEXT J
97 36 FOR J=0 TO 25:PRINT:NEXT J
98 37 FOR J=0 TO 25:PRINT:NEXT J
99 38 FOR J=0 TO 25:PRINT:NEXT J
9A 39 FOR J=0 TO 25:PRINT:NEXT J
9B 3A FOR J=0 TO 25:PRINT:NEXT J
9C 3B FOR J=0 TO 25:PRINT:NEXT J
9D 3C FOR J=0 TO 25:PRINT:NEXT J
9E 3D FOR J=0 TO 25:PRINT:NEXT J
9F 3E FOR J=0 TO 25:PRINT:NEXT J
A0 3F FOR J=0 TO 25:PRINT:NEXT J
A1 40 FOR J=0 TO 25:PRINT:NEXT J
A2 41 FOR J=0 TO 25:PRINT:NEXT J
A3 42 FOR J=0 TO 25:PRINT:NEXT J
A4 43 FOR J=0 TO 25:PRINT:NEXT J
A5 44 FOR J=0 TO 25:PRINT:NEXT J
A6 45 FOR J=0 TO 25:PRINT:NEXT J
A7 46 FOR J=0 TO 25:PRINT:NEXT J
A8 47 FOR J=0 TO 25:PRINT:NEXT J
A9 48 FOR J=0 TO 25:PRINT:NEXT J
AA 49 FOR J=0 TO 25:PRINT:NEXT J
AB 4A FOR J=0 TO 25:PRINT:NEXT J
AC 4B FOR J=0 TO 25:PRINT:NEXT J
AD 4C FOR J=0 TO 25:PRINT:NEXT J
AE 4D FOR J=0 TO 25:PRINT:NEXT J
AF 4E FOR J=0 TO 25:PRINT:NEXT J
B0 4F FOR J=0 TO 25:PRINT:NEXT J
B1 50 FOR J=0 TO 25:PRINT:NEXT J
B2 51 FOR J=0 TO 25:PRINT:NEXT J
B3 52 FOR J=0 TO 25:PRINT:NEXT J
B4 53 FOR J=0 TO 25:PRINT:NEXT J
B5 54 FOR J=0 TO 25:PRINT:NEXT J
B6 55 FOR J=0 TO 25:PRINT:NEXT J
B7 56 FOR J=0 TO 25:PRINT:NEXT J
B8 57 FOR J=0 TO 25:PRINT:NEXT J
B9 58 FOR J=0 TO 25:PRINT:NEXT J
BA 59 FOR J=0 TO 25:PRINT:NEXT J
BB 5A FOR J=0 TO 25:PRINT:NEXT J
BC 5B FOR J=0 TO 25:PRINT:NEXT J
BD 5C FOR J=0 TO 25:PRINT:NEXT J
BE 5D FOR J=0 TO 25:PRINT:NEXT J
BF 5E FOR J=0 TO 25:PRINT:NEXT J
C0 5F FOR J=0 TO 25:PRINT:NEXT J
C1 60 FOR J=0 TO 25:PRINT:NEXT J
C2 61 FOR J=0 TO 25:PRINT:NEXT J
C3 62 FOR J=0 TO 25:PRINT:NEXT J
C4 63 FOR J=0 TO 25:PRINT:NEXT J
C5 64 FOR J=0 TO 25:PRINT:NEXT J
C6 65 FOR J=0 TO 25:PRINT:NEXT J
C7 66 FOR J=0 TO 25:PRINT:NEXT J
C8 67 FOR J=0 TO 25:PRINT:NEXT J
C9 68 FOR J=0 TO 25:PRINT:NEXT J
CA 69 FOR J=0 TO 25:PRINT:NEXT J
CB 6A FOR J=0 TO 25:PRINT:NEXT J
CC 6B FOR J=0 TO 25:PRINT:NEXT J
CD 6C FOR J=0 TO 25:PRINT:NEXT J
CE 6D FOR J=0 TO 25:PRINT:NEXT J
CF 6E FOR J=0 TO 25:PRINT:NEXT J
D0 6F FOR J=0 TO 25:PRINT:NEXT J
D1 70 FOR J=0 TO 25:PRINT:NEXT J
D2 71 FOR J=0 TO 25:PRINT:NEXT J
D3 72 FOR J=0 TO 25:PRINT:NEXT J
D4 73 FOR J=0 TO 25:PRINT:NEXT J
D5 74 FOR J=0 TO 25:PRINT:NEXT J
D6 75 FOR J=0 TO 25:PRINT:NEXT J
D7 76 FOR J=0 TO 25:PRINT:NEXT J
D8 77 FOR J=0 TO 25:PRINT:NEXT J
D9 78 FOR J=0 TO 25:PRINT:NEXT J
DA 79 FOR J=0 TO 25:PRINT:NEXT J
DB 7A FOR J=0 TO 25:PRINT:NEXT J
DC 7B FOR J=0 TO 25:PRINT:NEXT J
DD 7C FOR J=0 TO 25:PRINT:NEXT J
DE 7D FOR J=0 TO 25:PRINT:NEXT J
DF 7E FOR J=0 TO 25:PRINT:NEXT J
E0 7F FOR J=0 TO 25:PRINT:NEXT J
E1 80 FOR J=0 TO 25:PRINT:NEXT J
E2 81 FOR J=0 TO 25:PRINT:NEXT J
E3 82 FOR J=0 TO 25:PRINT:NEXT J
E4 83 FOR J=0 TO 25:PRINT:NEXT J
E5 84 FOR J=0 TO 25:PRINT:NEXT J
E6 85 FOR J=0 TO 25:PRINT:NEXT J
E7 86 FOR J=0 TO 25:PRINT:NEXT J
E8 87 FOR J=0 TO 25:PRINT:NEXT J
E9 88 FOR J=0 TO 25:PRINT:NEXT J
EA 89 FOR J=0 TO 25:PRINT:NEXT J
EB 8A FOR J=0 TO 25:PRINT:NEXT J
EC 8B FOR J=0 TO 25:PRINT:NEXT J
ED 8C FOR J=0 TO 25:PRINT:NEXT J
EE 8D FOR J=0 TO 25:PRINT:NEXT J
EF 8E FOR J=0 TO 25:PRINT:NEXT J
F0 8F FOR J=0 TO 25:PRINT:NEXT J
F1 90 FOR J=0 TO 25:PRINT:NEXT J
F2 91 FOR J=0 TO 25:PRINT:NEXT J
F3 92 FOR J=0 TO 25:PRINT:NEXT J
F4 93 FOR J=0 TO 25:PRINT:NEXT J
F5 94 FOR J=0 TO 25:PRINT:NEXT J
F6 95 FOR J=0 TO 25:PRINT:NEXT J
F7 96 FOR J=0 TO 25:PRINT:NEXT J
F8 97 FOR J=0 TO 25:PRINT:NEXT J
F9 98 FOR J=0 TO 25:PRINT:NEXT J
FA 99 FOR J=0 TO 25:PRINT:NEXT J
FB 9A FOR J=0 TO 25:PRINT:NEXT J
FC 9B FOR J=0 TO 25:PRINT:NEXT J
FD 9C FOR J=0 TO 25:PRINT:NEXT J
FE 9D FOR J=0 TO 25:PRINT:NEXT J
FF 9E FOR J=0 TO 25:PRINT:NEXT J

```

Listing 19

```

10 VSCROL=0
20 VSCROL=1
30 VSCROL=2
40 VSCROL=3
50 VSCROL=4
60 VSCROL=5
70 VSCROL=6
80 VSCROL=7
90 VSCROL=8
A0 VSCROL=9
B0 VSCROL=10
C0 VSCROL=11
D0 VSCROL=12
E0 VSCROL=13
F0 VSCROL=14

```

Listing 20



Figure 2 Use of contiguous lines and screen scrolling with register VSCROL.

As you can see then, more than anything else scrolling demands precise memory management - something you don't normally have to worry much about. This is further emphasized when setting up for horizontal scrolling.

The difficulty is that while graphics mode lines appear completely separate on the screen, they are not so in RAM. The bytes for one line follow directly on those of the previous line. Thus, if you attempted (for example) to scroll the third line of a screen, the contents of line four would scroll into line three, line five into line four, and so on. However, by organizing the screen memory differently it is easy to get around this problem, and horizontal scrolling then becomes easier if anything than vertical scrolling. What you do is direct each line you wish to scroll to its own separate area of memory, and this is done by setting an LMS instruction on each line to be scrolled. As always, an example helps to clarify the position.

Listing 11 arranges for a line of text in Graphics 2 to be horizontally across scroll across the screen. It first sets up a new DL on page zero, then the third mode line down is directed to a different memory area (actually page zero) than the rest of the screen by its own LMS code. The 7th mode line is then directed back to the regular screen memory by another LMS instruction. Incrementing the LMS operand low byte for the 6th mode line causes right-to-left scrolling, and when the end of page zero is reached the pointer is directed back to the start of the page. One point to note here, lost between 230 3 of course the last location in page zero, but since the mode line itself takes 30 bytes, we use 219-20-123 as the limiting point for writes to the start of the page. If you look carefully, you can see that the display suddenly changes completely when the return to the start of the page occurs. As an exercise, you might like to arrange this program so that each mode line displays and scrolls a different page as necessary. If you get stuck, see the Annex (page 6-4) -and see just such a program to study.

Text memory is arranged in this way, *line scrolling* can be implemented in the same fashion as vertical line scrolling. The register to use is HSCR0L (location 1476, 1404 hex) which will scroll up to 16 colour blocks horizontally in an

almost instant and with the same limitations as VSCR0L. To scroll over a large area therefore, we must combine line and course scrolling as before. To effect horizontal line scrolling, the appropriate lines of the DL must have the horizontal line scroll bit set (bit 16 to the DL mode line instruction). A slight complication in this incarnation is HSCR0L scrolls the line from left to right, while as we have seen incrementing the LMS operand moves a line right to left. To fine scroll the same message across as in Listing 11, we first set HSCR0L to eight (Graphics 2 characters are eight colour blocks wide) and decrement HSCR0L to do the scroll. Unfortunately, setting HSCR0L to eight would move the line one character to the right. To bring the line back to its correct starting position therefore we set the LMS low byte initially to one unit less than zero. To see how this works, add Listing 11 to Listing 10 and cross the program. Once again, we get those unpleasant glitches, and again we can only get rid of these by scrolling during the vertical blank interval.

```

80 16 0000 0000000000000000000000000000
81 00 0000 010, 100, 100, 70, 0, 0, 7, 7, 0, 0, 0, 0, 0, 7, 7, 0, 0, 0, 0, 0, 0, 0, 0, 0
82 00 000 0000 00000,0
83 00 000 000 000 7 0 1 0000 110000 0000,0,0
84 00 000 000 000 00 00000 00000 0
85 00 000 000 001 70 00000 00000 0
86 00 000 000 001 70 00000 00000 0
87 00 000 000 001 70 00000 00000 0
88 00 000 000 001 70 00000 00000 0
89 00 000 000 001 70 00000 00000 0
90 00 000 000 001 70 00000 00000 0
91 00 000 000 001 70 00000 00000 0
92 00 000 000 001 70 00000 00000 0
93 00 000 000 001 70 00000 00000 0
94 00 000 000 001 70 00000 00000 0
95 00 000 000 001 70 00000 00000 0
96 00 000 000 001 70 00000 00000 0
97 00 000 000 001 70 00000 00000 0
98 00 000 000 001 70 00000 00000 0
99 00 000 000 001 70 00000 00000 0
100 00 000 000 001 70 00000 00000 0

```

Listing 11

Before bumping to a VR routine to do this, let's look at a slightly more practical demonstration. Listing 12 sets up a DL to scroll one line of Graphics 2 text as before, but this time the text is a message that will scroll across the screen. Line 30 contains some memory (0 5E) to hold our message, and the subroutines at line 70-74E do the internal character codes of the message, held in AL, into the reserved area. Incidentally, 132 bytes may not sound a lot, but since Graphics 2 screens only use 30 bytes per line you can scroll through the equivalent of 13 screens with the use of just 3K of memory. I believe that Chris Crawford used Graphics 2 for his celebrated "Visions From" map, the surprisingly small amount of memory used in scrolling text mode explains how such a large map and complex program fits on a 16K.

Take a look now at lines 908 to 923 where AL is defined. You will see that the string starts with two blank spaces. Why is that? Well, remember that when vertically scrolling a display we stratified our mode line to act as a buffer. Setting the horizontal scroll rate on the DL makes *At least* six extra 20th of memory per mode line to act as a scrolling buffer (in the case of a 20-byte line, four extra bytes). On a normal-width playfield, these four bytes - two at each end of the line - are not displayed on the screen, but we have to take them into account all the same. If we didn't do this by starting the scrolling memory area with two extra characters (blanks because we don't want them to be seen) then we would lose the first two characters of the message. Secondly, you will have noticed that the last 20 characters of the string are identical to the first 20 characters. This is because for the purposes of this demonstration we want the message to repeat over and over again. However, directing the display memory back to the start of the message when the end is reached would result in a sudden change in the display. Try changing the last 20 characters of the string to see what I

```

90 16 0000 000000000000000000000000
91 00 000000 00000,0
92 00 000 000 00000,0
93 00 000 000 00000,0
94 00 000 000 00000,0
95 00 000 000 00000,0
96 00 000 000 00000,0
97 00 000 000 00000,0
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106 00 000 000 00000,0
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108 00 000 000 00000,0
109 00 000 000 00000,0
110 00 000 000 00000,0
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113 00 000 000 00000,0
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115 00 000 000 00000,0
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160 00 000 000 00000,0

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Listing 12

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BLOCKBREAKER

by Dave Hill

BLOCKBREAKER will run on any Atari 400/800/XL/XE with a minimum of 128 KRAM. A paddle will be required plugged into jack 1. The Level 1 playfield appears after about one minute of initialization. Please note - when **RUNNING** **BLOCKBREAKER** you should start out with clear RAM. If you have just switched on your machine and loaded in the program all will be well (provided you have typed the program correctly). Otherwise make sure that you have **SAVED** or **CRASHED** a copy of the program and then type **POWER SW.** in direct mode and hit **RETURN** then **RESET** before loading. This process clears RAM in the same manner as switching off and on does but is kinder to the machine.

THE GAME

Blockbreaker is based on one of the classic computer games in which you have to demolish a wall of bricks using a fast-moving ball directed by your paddle. Simple in concept, the game is nevertheless become very addictive (and not a little frustrating) as you strive to keep the ball in play to beat the current high score. Two types of brick will be used 'normal' and 'special', the latter identifiable by pulsing colours. Both types have a points value dependent on their position in the wall. Unlike the normal bricks however, hitting one of the 'special' will give you additional points as displayed on the bonus counter top right and also initiate a stacking routine transferring them out of the playfield area.

STACKING During this manoeuvre, attempt to strike any remaining special bricks because, in this phase, each hit counts as a reward for the player with bonus points but the level is nonetheless remain intact. Since the bonus counter resets each time the ball hits a special brick, 800 points can be earned using skillful paddle control. As the game progresses a stack of bricks will be formed on the left. Losing a ball during play forfeits a part of this stack. Once the whole wall has been demolished each stack of bricks becomes worth 800 additional points. An extra ball is then awarded (up to a maximum reserve of 9) after which the next level commences. There are 4 levels total. Should you succeed in clearing level 4 (as me in fact), levels 5 to 8 will repeat.

BALL MOTION The ball has two possible speeds selected automatically during game play and is served by pressing the trigger. In the three phase only two angles of bounce are possible but during the last phase, shallow bounce angles will result if the ball is struck closer to the centre of the paddle. These angles will be required in order to gain maximum benefit from the special brick scoring routine and in order to complete a level.

RESTARTING When you have lost all reserve balls the high score is updated, a goal target being in the zone of thousands. Press the **START** key to begin a new game.

TECHNICAL NOTES

Those of you who just want to play the game do not need to read on but if you are interested in how the program works I have provided some notes on various parts of the program.

Except for the extra being period table entry loading, together with a boot loader level sequence, the program runs entirely in machine language. A combination of machine code with vertical blank and display list interrupts is used. The use of interrupt code results in smooth motion (some graphics objects are moved while the screen is blanked out), the ability to use 4 channel sound independently of other operations and the use of multiple colours.

The machine code kicks after the service routine turn for each ball, updates display list items and scoring and returns control of normal brick routines. The VBL is responsible for moving paddle, ball and 'special' bricks during the stacking routine. It also checks for collisions between ball and other playfield objects, generates sound values and updates the high score/copyright message. Twenty two DELTs are incorporated to support a unique colour in each row of bricks. In this manner up to 40 colours can be displayed on the screen simultaneously. Additionally, the colours themselves are re-allocated for each new wall.

SOUND All sound is processed in a vertical blank interrupt. Because the VBI operates independently of the machine program in a precisely timed manner it is ideal for such use. Blockbuster's sound is simple but effective—an example is given in Listing 2. Because our VBI operates 30 times per second, each sound pulse requires several passes. In the example given (ball hitting bat), 7 passes are required. Flag1 is the master flag which controls the routine each time the collision register is set. It does this regardless of whether the routine is currently active from a previous strike or is off. Flag1 simply bypasses the routine if no sound is required.

Location 5176H is very important for sound production although few programmers appear to take advantage of it. The master beat heard during initialization owes its effect to this register. An demonstration is by replacing the '7' in line 51H with a default of '0'. The smoothly descending high pitched note of the falling back is a result of strobing one sound channel with a much higher frequency to that normally used—because 736H appears.

MOTION All performed in the VBI in order to achieve smoothness. "Player" are used to represent ball, bat and falling back, the latter effect produced as follows. Once the VBI has detected a collision between ball and playfield register 2 (a "special" break), the rock break is explained by Player 1, the playfield back image is blanked out and motion of the Player continues. Its image is replaced by a playfield image once the break has been "washed" thereby releasing the space for further use. When combining playfield graphics with PARQ in this manner reference tables should be kept of related positional values (lines 1193, 1194)—see Listing 3.

THE BALL Variables (in the sense of memory locations) are used to keep track of the ball and bat X/Y coordinates. Once a collision has been registered, the X coordinate of the left edge of the bat is subtracted from the ball's X position to give a value between 0 and 11. This value is used as an index to row Page 8 tables (lines 1308-1320). The first table determines the ball's reflected angle, a '1' informing the VBI to move the image one "panel" both horizontally and vertically on each pass—number words at 45 degrees. The second table locations are polled with a '0' during play showing us required movement of two panels vertically on each pass to every one horizontally—that is, noisy, not straight up. Table 7's value is simply added to the ball's X coordinate so as to move it left or right/falling 151 is the ball being registered in subtracting 1). The ball's speed is obtained by simply cycling the above routine once or twice during each VBI pass.

COLOURS The vertically structured form of the Blockbuster display is ideal for multiple colour generation by Display List Interrupts. Each DLI (there are 22 of these)

selects two colours from tables used in page 6 of memory. The first colour is POKED at right into register 5127H and defines the "normal" break. The second colour is incorporated by 16 on each DLI pass before POKING into 5127H, the register used for the "special" breaks, to give the colour effect. These instructions corresponding to the more commonly used shadow registers at 509 and 510 but when using DLIs we can POKe directly to the OTM chip. Although 12 DLIs are appearing, because they each perform a similar task, only one master routine is required (see lines 1021 - 1021). All we require is a counter which is set manually on each DLI and which is then used as an index to the colour tables. Since we have a VBI operating we use this to reset our counters to 0 as preparation for the next image. In addition the colour tables are refreshed by the VBI for each new level.

SCROLLING The information line is scrolled conventionally using register 5476H and the VBI. After a game ends, the score/bonus values are computed digit by digit using offsets from the start of the memory's scrolling memory. The latter resides in the constant area not made for PARQ (lines 1006 - 1006). Hence it is updated when required, by the machine code which a bonus a flag (5480) to allow BASIC to perform its logic routine of message selection (lines 1115, 1115, 460 - 461). Scrolling continues throughout a game—you don't see the message during play because the console's memory pointer is reset to a clear area of RAM by a single BASIC code.

MEMORY MANAGEMENT Line 1000 sets aside wedges of RAM for Player Names, Graphics, the predefined character set, the normal block code and the machine code—all these reside in the upper reaches of RAM just beneath RAMTOP and safe from the clutches of BASIC. The named section of PARQ is utilized for the scrolling routine (including the latter's unique VBI—lines 1026-1026), the new display list (lines 1010-1010) and the DLI routine (1023-1023). Main of page 8 contains variables and tables used by the machine code. BASIC has little work to perform since initialization is complete but its speed is optimized by computing its code and removing the loop (lines 100-200) near the start of the program.

SCREEN PRINTING Since Blockbuster requires regular attention to the screen display, a machine code PRIN routine is incorporated into the machine code. This sets the cursor to the required location (see listing 1 for example), compares IOCB #6 and then 380's to CHN stat. The 5127's Y register temporarily holds the character to be printed (we could use the stack via PSH) and this is transferred to the accumulator in the PRINT routine as required by CRJ. See Listing 4.

Listings overlaid

Contact

ANALOG Issues 26, 27 and 28 wanted to complete my collection. Please phone Mark Hutchinson on 0212 621221 after 6 pm.

INDEX BY DISK DRIVE: For sale Original package as supplied with DOS XL, Spreadsheet, Word Processor and Database software, demonstration. Runs off single and double density software. One year old. Excellent condition. £199. Mike Digby 0299 267992

199 INTERPACE: For sale, little used. Also RTTY receive only unit and DOS XL ATARI 130 for Mr Ginn, 46, Valley Road, Swadlowcote, Burton-on-Trent, Staffs. Tel: Burton 21100

HARDWARE FOR TRADE: US Atari user willing to trade hardware. Atari compatible to Atari only please. I am looking to add a few extra and trade for my system. Tell me what you have and what you want and I will try and work something out. Steve 74979, 'USED WORKING' or 'USED REPAIRABLE AND PROBLEM' Sender responsible for postage as what he sends. Receiver responsible for duties on what he receives. Dennis P. Malinak, 7006 Lawrence, Tucker Ave, Oklahoma 73145, U.S.A. Tel: 405-743-9496

AUSTRIAN PEN PAL: My name is Alan Wilson and I live in Vienna, Austria. I own an Atari 800XL and a 1650 disk drive and I am looking for pen-pals around the world to swap tips and ideas with. Please write to Alan Wilson, Brunnenweg 146/64/6, 1210 Vienna, Austria

PRN PAL: I would like to write to other Atari users to discuss program swap and ideas. I have a 404 800 and an 800XL with 1650 disk drive. Vaughan Jones, 26, Grosfield Way, Little Aston, Walsham, Chyrd, LL11 8BB

NORTHAMPTON ST USER GROUP: Anyone who would like to form an ST User Group in NORTH AMP (ONSHERE, please contact Paul Taylor, 87, Stickle Street, Northampton, NN2 7BE or ring 0804 717881

EPSON 8000 PRINTER FOR SALE: EPSON 8000 MK II with Graphics chips (£125 on sale. Phone Rob on 01 577 8248

WE 3000 MEDIUM FOR SALE: Based on new software manuals on £120 only! Can be sold with two disks of software and installation for any Atari, be up and running for £20 extra. Rang. Royce on 0298 76871

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1650 FOR SALE: Atari 1610 Program Recorder including disk cover. Unwanted gift. £28 inc. postage. 3 R. Palfrey, 1a, Crowtham Drive, Leigh-on-Sea, Essex, S69 1BX

ATARI ROOTS: I am desperate to get hold of a copy of the book 'Atari Roots' which is now out of print. If anyone has a copy for sale, please write or phone Les Lawson, 100, Barrow Road, Barry To Fairwood, Saffolk, IP35 1LY. Tel: 0234 762373

WE 3000 MEDIUM FOR SALE: With Veratex reader interface, suitable for XL Atari computers. Unwanted Christmas gift. Unused and still in original box (£150 the list Price. C Saunders 01 432 2373

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ATARI USERS: C MOSE is the bi-monthly Atari Users newsletter with news, reviews, advertisements. 80p (inc p&p) for a sample copy or £4 for 1 year subscription. Specially recommended for games enthusiasts. Send to Alan Whalley, 40, Cameron Crescent, Berke, Banbridge, Scotland

ANALOG WANTED: Issues 25, 29, 30 and 31 wanted in excellent/used condition. Please state preferred postage. John Hayes, 542, Sandhurst Road, Edmonstone, London, N9 8BE

WORTHING ATARI 800: After an unforeseen closure in August, WARRS is now back on line on a new phone number - 0903 503111. WARRS is an Atari based system running on an 800XL with 2 drives and an updated version of Pictex called UltraForm which uses Smart-Box and Base XL. Can run 24 hours on a ringlock system - let the phone ring over, hang up and phone back within 1 minute. Symp - Ray

RAM PACKS: Two 16k RAM packs (CX 851) unused, still in box. Offers please. Also printer wanted suitable for direct connection to Atari. Peter Cunningham, 11, Herwyn Avenue, Pirefield, Chester, CH4 9HS. Tel: 02974 360272

PAGE 4 BACK ISSUES: The following reader requires copies of Issues 1 and 2. Derek Ross, 117 Mossdale Road, Shorelands, Glasgow, G41. Tel: 041 642 5370

DE BR ATARI: For sale, as new (£10. Phone Huxton 4617

PENPALS WANTED: I would like to make new friends with anyone on the U.K., U.S.A., Europe, Canada or Australia. I have a 130XL, 1650 disk drive. Please write to David Morgan, 11, Walter Road, Astonfield, Dyfed, South Wales, G1 Brynau. Tel: 0289 3346

THE WEDGE: Has anyone got a copy of COMPUTE for MAY 1981? I want the article and listing by Michael Harper of the updated version of The Wedge. Photocopies will suffice. T C Major, 241, Avenue Road, Exton, Leicestershire. Tel: Leicester 767286

CLOSE ASSAULT: Can any help me to win the ultimate version of this game on an 800XL? Post Lock, 308, Clapham Terrace, Llanrwyst, Gyn, Wrexham, CVN 1JE

PRESTON ATARI CLUBS PAGE: now meets on the second Wednesday of each month at Ingot Labors Club, Waddy Avenue, Ingot, Preston. Meet ing there at 7.30 pm.

BILANTEN BOARD/ATARI: Can anyone please tell me how to find a Bulletin Board who works with Dealer's services? Rensald Hallberg, Sorenstapan 22, 204 72 MALMO, Sweden

GRAPHICS

by Allan Knopp

WORKSHOP

In *GRAPHICS* magazine, June 1983 there was a program written by Lynn Davidson demonstrating the technique of pixel averaging. I was inspired by the possibilities of the technique and decided to write a drawing program for the GTEA model which could incorporate pixel averaging and the resulting program was the Graphics Workshop presented here.

The program incorporates many of the facilities you would expect from a drawing program and includes a few extras. As well as the pixel averaging technique, which gives results similar to digital patterns, there is colour mixing. Commands are announced in blue (any thing the ST can do!). The rest of the facilities and all commands are explained.

GRAPHICS WORKSHOP COMMANDS

The appropriate keypresses are indicated. In many cases the removal of an instruction is to press the same key with **CONTROL**.

- A AIRBRUSH CTRL A** to end.
- B BOX** Position cursor to one corner, press Fire button to plot point, move cursor to diagonally opposite corner and press **START**.
- C COLOUR** Will change the background colour in mode 9 and 11. Use the joystick. Forward will decrease by 18 then keeping the same hue increase but changing the colour. Left will decrease by 1, right will increase by 1. Press **START** to return to the drawing.
- D DRAW TO** Plot one end of line, move the cursor to the other end and press **START** to draw a line between the two.
- E ERASE** Clears the graphics screen. Answer Y to the prompt to clear the screen.
- F FILL** Plot top left, move to bottom left and press **START**. This is the standard **XOR FILL** over the background from left to right until it hits a pixel which is lit.
- G GRAPHICS** Select modes 9, 10 or 11 without clearing the screen. The colour selection bar looks a little odd in graphics 10 but just use the top 8 blocks (colours 1 to 8) plus the background (colour 0), except the rest.
- K COLOUR CHANGE** In graphics 10, colours 0 to 8 are available. Select which colour you wish to clear and use the joystick to change. Press **SELECT** for another colour, **START** to return to the drawing.
- L LOAD** Load disk or cassette.

NOTE SUBSCRIBERS: Ask for it by title name and request several picture jobs for use in the Graphics Workshop by using those elements using the pixel averaging technique. Full details of use will be on the disk.

- M MOVE CURSOR SLOWLY** For detailed work CTRL M to end.
- N NO BAR** This will remove the colour bar from the right hand side of the screen. CTRL N will replace it.
- O CIRCLE** Plot the centre buttons of the circle, move the cursor vertically to the centre and press START. You will not be able to plot a circle which stretches off the screen, you will get an error message and be asked to try again.
- F PIXEL ADVANCING** This is the feature which appeared in ANTIC, June 1983. It is really only intended to be used on Graphics 9 although some processing effort can be obtained on 10 and 11. It has the effect of softening hard edges and smoothing contours. Once the feature is started, it cannot be stopped until it has finished, except by pressing RESET and losing the picture. Once the screen has been completely concerned, it is possible to restart it and add text.
- R REPEAT COLOURS** This can be used only on graphics 10. It enables you to rotate colours through the colour registers to give some animation to your picture. It is possible to rotate through any of the nine registers, including the background. The registers must however be consecutive.
- S SAVE** To disk or cassette.
- T TEXT** Print text to the screen, one character at a time. Position the cursor and select the colour before pressing T. To cancel press CTRL T and RETURN.
- W WIRE BRUSH** CTRL W to end.
- UP ARROW** MOVE CURSOR SELECTOR UP
- DOWN ARROW** MOVE CURSOR SELECTOR DOWN
- 1-9** JUMP CURSOR: Will position cursor instantly at the relevant point on the screen.

That's it! you should be pleased to see any pictures you have drawn with the Graphics Working. Please send them in to the Editor and he will send them on. All disks or cassettes will be returned.

```

00 1 END *****
01 2 END M          DISPLAY MESSAGE  M
02 3 END M          M
03 4 END M          ALLAN KNAPP      M
04 5 END M          *****
05 6 END M          PAGE 1 DRAWING = DRAWING M
07 7 END *****
08 END END
09 END GOOD END
10 END T CORNER *****
11 100 T CORNER *****
12 110 T CORNER *****
13 120 T CORNER *****
14 130 T CORNER *****
15 140 T CORNER *****
16 150 T CORNER *****
17 160 T CORNER *****
18 170 T CORNER *****
19 180 T CORNER *****
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69 680 T CORNER *****
70 690 T CORNER *****
71 700 T CORNER *****
72 710 T CORNER *****
73 720 T CORNER *****
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91 900 T CORNER *****
92 910 T CORNER *****
93 920 T CORNER *****
94 930 T CORNER *****
95 940 T CORNER *****
96 950 T CORNER *****
97 960 T CORNER *****
98 970 T CORNER *****
99 980 T CORNER *****
100 990 T CORNER *****

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00 1010 BIRTH 7 0 0 0 0 0 0 0
01 1020 BIRTH 2 2 0 0 0 0 0 0
02 1030 BIRTH 2 0 0 0 0 0 0 0
03 1040 BIRTH 2 0 0 0 0 0 0 0
04 1050 BIRTH 2 0 0 0 0 0 0 0
05 1060 BIRTH 2 0 0 0 0 0 0 0
06 1070 BIRTH 2 0 0 0 0 0 0 0
07 1080 BIRTH 2 0 0 0 0 0 0 0
08 1090 BIRTH 2 0 0 0 0 0 0 0
09 1100 BIRTH 2 0 0 0 0 0 0 0
10 1110 BIRTH 2 0 0 0 0 0 0 0
11 1120 BIRTH 2 0 0 0 0 0 0 0
12 1130 BIRTH 2 0 0 0 0 0 0 0
13 1140 BIRTH 2 0 0 0 0 0 0 0
14 1150 BIRTH 2 0 0 0 0 0 0 0
15 1160 BIRTH 2 0 0 0 0 0 0 0
16 1170 BIRTH 2 0 0 0 0 0 0 0
17 1180 BIRTH 2 0 0 0 0 0 0 0
18 1190 BIRTH 2 0 0 0 0 0 0 0
19 1200 BIRTH 2 0 0 0 0 0 0 0
20 1210 BIRTH 2 0 0 0 0 0 0 0
21 1220 BIRTH 2 0 0 0 0 0 0 0
22 1230 BIRTH 2 0 0 0 0 0 0 0
23 1240 BIRTH 2 0 0 0 0 0 0 0
24 1250 BIRTH 2 0 0 0 0 0 0 0
25 1260 BIRTH 2 0 0 0 0 0 0 0
26 1270 BIRTH 2 0 0 0 0 0 0 0
27 1280 BIRTH 2 0 0 0 0 0 0 0
28 1290 BIRTH 2 0 0 0 0 0 0 0
29 1300 BIRTH 2 0 0 0 0 0 0 0
30 1310 BIRTH 2 0 0 0 0 0 0 0
31 1320 BIRTH 2 0 0 0 0 0 0 0
32 1330 BIRTH 2 0 0 0 0 0 0 0
33 1340 BIRTH 2 0 0 0 0 0 0 0
34 1350 BIRTH 2 0 0 0 0 0 0 0
35 1360 BIRTH 2 0 0 0 0 0 0 0
36 1370 BIRTH 2 0 0 0 0 0 0 0
37 1380 BIRTH 2 0 0 0 0 0 0 0
38 1390 BIRTH 2 0 0 0 0 0 0 0
39 1400 BIRTH 2 0 0 0 0 0 0 0
40 1410 BIRTH 2 0 0 0 0 0 0 0
41 1420 BIRTH 2 0 0 0 0 0 0 0
42 1430 BIRTH 2 0 0 0 0 0 0 0
43 1440 BIRTH 2 0 0 0 0 0 0 0
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47 1480 BIRTH 2 0 0 0 0 0 0 0
48 1490 BIRTH 2 0 0 0 0 0 0 0
49 1500 BIRTH 2 0 0 0 0 0 0 0
50 1510 BIRTH 2 0 0 0 0 0 0 0
51 1520 BIRTH 2 0 0 0 0 0 0 0
52 1530 BIRTH 2 0 0 0 0 0 0 0
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56 1570 BIRTH 2 0 0 0 0 0 0 0
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58 1590 BIRTH 2 0 0 0 0 0 0 0
59 1600 BIRTH 2 0 0 0 0 0 0 0
60 1610 BIRTH 2 0 0 0 0 0 0 0
61 1620 BIRTH 2 0 0 0 0 0 0 0
62 1630 BIRTH 2 0 0 0 0 0 0 0
63 1640 BIRTH 2 0 0 0 0 0 0 0
64 1650 BIRTH 2 0 0 0 0 0 0 0
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66 1670 BIRTH 2 0 0 0 0 0 0 0
67 1680 BIRTH 2 0 0 0 0 0 0 0
68 1690 BIRTH 2 0 0 0 0 0 0 0
69 1700 BIRTH 2 0 0 0 0 0 0 0
70 1710 BIRTH 2 0 0 0 0 0 0 0
71 1720 BIRTH 2 0 0 0 0 0 0 0
72 1730 BIRTH 2 0 0 0 0 0 0 0
73 1740 BIRTH 2 0 0 0 0 0 0 0
74 1750 BIRTH 2 0 0 0 0 0 0 0
75 1760 BIRTH 2 0 0 0 0 0 0 0
76 1770 BIRTH 2 0 0 0 0 0 0 0
77 1780 BIRTH 2 0 0 0 0 0 0 0
78 1790 BIRTH 2 0 0 0 0 0 0 0
79 1800 BIRTH 2 0 0 0 0 0 0 0
80 1810 BIRTH 2 0 0 0 0 0 0 0
81 1820 BIRTH 2 0 0 0 0 0 0 0
82 1830 BIRTH 2 0 0 0 0 0 0 0
83 1840 BIRTH 2 0 0 0 0 0 0 0
84 1850 BIRTH 2 0 0 0 0 0 0 0
85 1860 BIRTH 2 0 0 0 0 0 0 0
86 1870 BIRTH 2 0 0 0 0 0 0 0
87 1880 BIRTH 2 0 0 0 0 0 0 0
88 1890 BIRTH 2 0 0 0 0 0 0 0
89 1900 BIRTH 2 0 0 0 0 0 0 0
90 1910 BIRTH 2 0 0 0 0 0 0 0
91 1920 BIRTH 2 0 0 0 0 0 0 0
92 1930 BIRTH 2 0 0 0 0 0 0 0
93 1940 BIRTH 2 0 0 0 0 0 0 0
94 1950 BIRTH 2 0 0 0 0 0 0 0
95 1960 BIRTH 2 0 0 0 0 0 0 0
96 1970 BIRTH 2 0 0 0 0 0 0 0
97 1980 BIRTH 2 0 0 0 0 0 0 0
98 1990 BIRTH 2 0 0 0 0 0 0 0
99 2000 BIRTH 2 0 0 0 0 0 0 0

COLOUR PALETTE

When it comes to computer graphics, the Atari 400/500 XL/XE makes an undoubted leader in the 8 bit field. Any idiot with two eyes and a brain can see that! (Unfortunately, that idiot can see-eyed Commodore 64 and Apple owners.)

And what makes the Atari so superior to the others? Well, there's the huge scale custom integrated circuits that make it all possible. There's the colour selection from a palette of 256 colours. There's the 6 character graphics modes and the 11 bit-mapped graphics modes which can be used and masked anyway you like through custom display lists. There's the operating system's built-in drawing commands. There's the page flipping and the reliable character set. There's the display list interrupts and the vertical blank interrupts. There's the variable Atari player-remote graphics which make animation such a breeze. There's the hardware controlled horizontal and vertical line scrolling. And there's the pure fascination and excitement of having so much graphics potential at your fingertips!

However, all this graphics power is useless to you unless you have the tools and knowledge to use it. I can't give you the knowledge (that comes from reading every Atari magazine, book and technical manual) that you can get your hands on, but I can provide you with a useful tool.

The accompanying program is a colour selection utility that I wrote some years ago and have found invaluable ever since. Simply type in the program, check it with TYPD (1) and here a copy before running. You don't need any instructions. Everything you need to know is presented on the screen.

When typing the program in, be careful of the funny strings in lines 1060 and 1160-1180. I must apologise for these. I wouldn't normally include a program full of funny characters because I know how hard they are to type in. Unfortunately, I didn't have time to change them.

DESIGN NOTES

Colour Palette is a very interesting program from a programmer's point of view because of the sheer number of different graphics techniques used in such a short program. I had intended to describe them in some detail, but as I said above, I just ran out of time. You'll have to settle for the following sketchy notes.

Firstly, you should understand that Colour Palette was not just slapped together overnight, but was 'designed'. I gave a lot of thought to the best way to present a colour selection utility and what was the simplest and most intuitive way to use it. I eventually came up with the following goals:

- Any program initialization should be instantaneous (or as near as possible)



by Garry Francis

- The initial display should include a title, a copyright notice and instructions for the user.
- The cross of the display should show all 128 colours on the screen at once. (It is not necessary to show the 256 colours available in GRAPHICS 9 so that mode is rarely used and the screen is simply not big enough to display them all adequately.)
- All the colours should be separated by black dividers to avoid colour bleeding.
- The 'cursor' colour should be clearly identified by a cursor which is shaped so as not to obscure the colour underneath. The cursor's colour should alternate between black and white (i.e. flash) so as not to get lost amongst all the other colours.
- The user should be able to select any colour by simply moving the cursor about with a joystick.
- It should be possible to use the keyboard as an alternative to the joystick in case you don't have a joystick (highly unlikely), the joystick is broken or not plugged in or you simply prefer using the keyboard. The arrow keys are the obvious choice for cursor movement, but it shouldn't be necessary to press the CONTROL key unless you really want to.
- Whenever the cursor moves, the value of the new colour should be displayed immediately. It should not be necessary to confirm selection by [any] pressing the fire button. The colour value should be shown as both POKE values and SWITCHER values.
- The cursor should have a short delay after the fire button, but should speed up on the following moves as it the joystick or arrow keys are released.
- The program should be crashproof.
- And finally, it should be fun to use!

The real product uses a plethora of different graphics techniques including player-remote graphics and uses that strong manipulation using some fairly standard tricks. The custom display list incorporates character graphics, bit-mapped graphics, blink was lines and multiple display list interrupts. The latter are synchronized during the vertical blank intervals. (The assembly language routines are shown

in the accompanying listing for anyone interested. You do not have to type these in to use the program. (Note the numbers of GTIA modes and non-GTIA modes. Who said it couldn't be done?)

I think I've achieved my goal from the users' point of view, but some of the code could be improved. The auto-repeat routine is a case in point. Press an arrow key twice in quick succession to see what I mean. One of these days I'll rewrite the whole thing in assembly language. And one of these days I'll win the lottery too.

Anyway, type in Colour Palette and see what you think. I doubt that you'll be disappointed!

```

01 1 000 *****
02 2 000 0 COLOUR PALETTE 0
03 3 000 0 by Barry Franklin 0
04 4 000 0 *****
05 5 000 0 PAGE 0 MARSHING - 000000 0
06 6 000 *****
07 100 000 00 010,00 010,00 010,00 010,00 010,00 0
000
08 100 POSITION 10,0:POKE 107,0:IT 000:IT
"CLM:" "POSITION 10,0:POKE 107,0:IT 10
"000:CLM:" "
09 100 IF 100000:14 THEN 100
10 100 0000 0,0,0,0
11 100 IF 100000:14000 THEN 100
12 100 0000:10000 000:0000 100
13 100 0000:10000 100 0000 100
14 100 0000:10000 100 0000 100 0000 100
15 100 0000:10000 100 0000 100 0000 100
16 100 0000:10000 100 0000 100 0000 100
17 100 0000:10000 100 0000 100 0000 100
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```

2 BIT SYSTEMS

REPLAY

SOUND SAMPLING SYSTEM

REPLAY AT
 2 BIT SYSTEMS
 44

- SAMPLE RATE 1000 Hz
- SOUND PLAYBACK THROUGH TV SPEAKER
- SAMPLES PLUGS INTO CARTRIDGE PORT (NO SWITCHES)
- SOFTWARE SUPPLIED ON DISK OR TAPE
- SOUND PROGRAMS INSTALLED ON-DISKIT AND REMAIN OUTSIDE SAMPLE PLAYERS (SIMILAR TO THE PAPERDISK)
- ROUTINES SUPPLIED TO ALLOW YOU TO PLAY SAMPLES SUCH AS YOUR OWN MUSIC PROGRAMS
- ALLOWED SAMPLES FROM YOUR 80 PICK CARTRIDGE NECESSARY
- REQUIRED AT LEAST 80 MEMBERS
- COMPLETE PACKAGE CONSISTS OF:
 - SAMPLE CARTRIDGE
 - DISK SOFTWARE
 - TAPE SOFTWARE
 - MANUAL WITH FULL OPERATING INSTRUCTIONS
 - SOUND (ATA) MICROPHONES

Send cheque/P.O. for £39.90 (includes p&p) to
**2 BIT SYSTEMS, 44, MORCOM ROAD,
 DUNSTABLE, BEDS, LU8 4EG**

```

00000,0,POKE 0,0:IT 000:IT
"CLM:" "POSITION 10,0:POKE 107,0:IT 10
"000:CLM:" "
09 100 IF 100000:14 THEN 100
10 100 0000 0,0,0,0
11 100 IF 100000:14000 THEN 100
12 100 0000:10000 000:0000 100
13 100 0000:10000 100 0000 100
14 100 0000:10000 100 0000 100 0000 100
15 100 0000:10000 100 0000 100 0000 100
16 100 0000:10000 100 0000 100 0000 100
17 100 0000:10000 100 0000 100 0000 100
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94 100 0000:10000 100 0000 100 0000 100
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97 100 0000:10000 100 0000 100 0000 100
98 100 0000:10000 100 0000 100 0000 100
99 100 0000:10000 100 0000 100 0000 100
100 100 0000:10000 100 0000 100 0000 100

```


Touch Tablet Utilities

1. PICLOADA

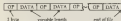
One of the nice things about Atari Artist used with the touch tablet is that it saves pictures as a 'compacted' form which enables many more pictures to be stored on disk or cassette. One of the problems is that this format is not compatible with any of the available programs for loading pictures into your own programs. Up to now this has meant that you yourself had had to be an 'Microcomputer' format by using the INSERT key whilst in DRAW mode and every picture as to whether simple or complex would take 62 sectors on a disk. I wanted to write a program which required many pictures and so had to find a way to use the 'compact' format. Here then you have the inside story about Atari Artist's compression technique together with a program (which runs in machine code) to load pictures into your own programs. Later I will provide a routine to use with this program which will allow you to add more colours to your pictures.

The first point to note about the compression technique is that there are two different modes of screen access, vertical and horizontal.

Vertical access: If we consider the screen as being divided into 40 columns (or bytes) then we access one column at a time, starting at the first row and moving down every other row until we reach the bottom of the screen. We then return to the top of the column and begin with the second row moving down every other row again until we reach the bottom before moving to the next column.

Horizontal access: This simply scans across rows from left to right.

So how do we know which format to use? In every PIC file used by Atari Artist the 8th byte in the file indicates the mode (1=vertical, 2=horizontal). From there bytes 14 to 16 hold the values for the colour registers 706 to 712 before the actual screen data begins at byte 26. Now that, of the first 27 bytes, only those described are actually used. The others appear redundant other than a length count which it is not necessary to use. The compacted screen data takes the following form:



by Paul Lay

OP can define three different operations:

OP=0

The data field for this operation is three bytes long and takes the form:



hi and low form a 16 bit value (256*hi+low).

The access to be taken here is to store 'byte' at the next (256*hi+low) screen location.

OP<=128 (but obviously >0)

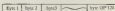
In this case the data field is just one byte long:



This is similar to OP=0 but is effectively an 8 bit version as the screen takes it to store 'byte' at the next 'OP' screen location.

OP>128

In this case the data field is OP-128 bytes long:



Here the address taken is to store the OP-128 bytes at the next OP-128 screen location.

Note that in all three modes the 'next' byte is determined by whatever screen access mode we are in.

The whole picture from byte 26 to the end of the file is then stored as a series of 'OP's and their data fields. The OP itself is dependent on the number of pixels of the same colour (or bytes of the same value) in each row or column of the screen.

The PICLOADA program can be used in conjunction with your own BASIC programs (in a subprogram). The original version was in BASIC but was somewhat slow so this is written now which is in machine code to load a picture as fast as Atari Artist. The program will prompt you for a filename (you must use the device name) and will then set up an ANTEC #6 display line before loading in the picture. Once loaded you may press any key to load another picture.

PICLOADA

PICLOADA Assembly Listing continued

```
0000 0000 0000 0000 0000 0000 0000 0000
0001 0000 0000 0000 0000 0000 0000 0000
0002 0000 0000 0000 0000 0000 0000 0000
0003 0000 0000 0000 0000 0000 0000 0000
0004 0000 0000 0000 0000 0000 0000 0000
0005 0000 0000 0000 0000 0000 0000 0000
0006 0000 0000 0000 0000 0000 0000 0000
0007 0000 0000 0000 0000 0000 0000 0000
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0075 0000 0000 0000 0000 0000 0000 0000
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0079 0000 0000 0000 0000 0000 0000 0000
0080 0000 0000 0000 0000 0000 0000 0000
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0086 0000 0000 0000 0000 0000 0000 0000
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0089 0000 0000 0000 0000 0000 0000 0000
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0115 0000 0000 0000 0000 0000 0000 0000
0116 0000 0000 0000 0000 0000 0000 0000
0117 0000 0000 0000 0000 0000 0000 0000
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0119 0000 0000 0000 0000 0000 0000 0000
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0124 0000 0000 0000 0000 0000 0000 0000
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Touch Tablet Utilities

2. COLOUR ATT

by Paul Lay

NOTE: This program uses the routines from PICLOADA (in this issue). PICLOADA must therefore be merged with the listing by LISTing from 1P to 83P of PICLOADA in disk with LIST <D> <filename> >*, PLOAD and then, after having loaded the attributes, using ENTER <D> <filename> >*

This program takes Atari format pictures and allows each colour register to be changed (or switched) as every scan line thus producing a picture with many more colours than normally available. The program is controlled with the Touch Tablet.

When the program is RUN, you will be given a list of available commands and prompted for a picture filename. Enter the filename and the picture will be loaded. By using the Touch Tablet in part 4B you can now control a cross-hair cursor which you may move about the screen. Move the cursor so that it is on a certain colour and hold down any Touch Tablet button. By moving the stylus around this colour is mixed from the position of the cursor to the bottom of the screen. When the desired colour is displayed, release the button and the colour will remain set.

Note, as the colour is changed from the cursor position downwards, a top-down approach should be taken when colouring pictures.

There are five functions which are accessed by the keypresses indicated.

- [L] - Load attributes
- [S] - Save attributes
- [R] - Random fill
- [M] - random fill
- [N] - New picture

Load and Save save and recall the attributes to-disk with the picture filename plus the extension .ATT.

The two fill commands fill the next colour selected by replacing it with either a random or rainbow pattern. Note means the program so that a new picture can be worked on (don't forget to save any previous work first).

Finally note that the cross hair cursor is a player graphic controlled by trigger and it is important that the trigger are DIMensioned in the correct order. If you have any problems LIST the program to-disk, or-load and ENTER it to clear the variable table.

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GRAPHICS ART DEPARTMENT

Databyte

reviewed by Alan Goldbro

Every now and then among the multitude of good quality microprocessors, comes a package worthy of the accolade 'impress'. The Graphics Arts Department from Databyte has all the hallmarks of such a program.

This is the latest in a line of graphics software from various companies and is compatible with all computers with a minimum of 48k. It comes on disk only and is joystick controlled.

To any way of thinking the program has four parts:

- 1 Arts Bench
- 2 Editor
- 3 Picture Viewer
- 4 Picture Dump

ARTS BENCH Means drawing, over 90 commands selected by keyboard including any of 128 colours, all selected from four point pots and a mixing palette. To achieve more than 4 solid colours at any one time you have to employ the use of the DLF command. This proved to be difficult at first as the documentation is rather sparse here. Basically, if you select a colour register of your choice for the DLF's then plot where you want your band of colour to start, you may then plot colour changes all the way down the screen using the same register with either a different shade of the original colour or a new colour chosen from the various solid colours available on the Arts. Whenever you use the original colour register the area you have designated for your variations you will achieve your desired result. You can use any of the three other registers to draw with over your DLF's without the colour being changed. It told you it was difficult, but it is well worth it! DLF's should not be turned off without first saving your picture so, once turned off, you'll have to start them again. This caused me considerable time as developing a picture will use of the Refresh command in as whole as any of the colour registers but not when you have elected for DLF's.

There are 16 art patterns which can be used as back grounds or frame-fill, which when combined with modified to suit your own ideas but we'll come back to this later. The usual commands such as Lines, Rays, Curves, Rectangles are available plus Triangle and Ellipse. I especially enjoyed the Ellipse as you gain the opportunity to adjust the degree of length. There is a Kaleidoscope mode which lets you draw symmetrically in four locations at the same time.

An unusual command is a Cursor location command. Press 'C' at any time and it will tell you the co-ordinates of the cursor. A three stage zoom is standard, Refresh speech can be altered and there is a comprehensive list of 40 different brush

uses plus a built in editor.

We now come on to the more advanced parts of the menu. Invert (non-colour) allows you to either invert the screen, or an area, or just invert the colours you wish to invert. Rotate is an excellent command. Define the area, move the pointer to rotate and press the trigger to set it. The Area Block is another good command allowing Area Fill Block as Fill-ground and it even has a Move. Again (solid) Another command is a similar version Mirror/Flip. Again you define the area, press the trigger and there you have it either mirrored horizontally or flipped vertically. Undo Last Command is a godsend in any drawing program, if you make a mistake and spoil your work just press 'U' to restore your picture to an original condition. For those amongst you who love to play about, Scroll Picture will occupy you for hours, use the mouse keys to move the picture left, right, up or down.

To finish off your masterpiece all you need is to give it a nice caption and G.A.D. allows you to do just that! Type in your message, choose from some different sizes, move it to anywhere on the screen and press the trigger. A nice facility is Last Message where you can whenever a G.D. is filled by changing the colour of the text and overlaying the original with the new. There is also an in-built font editor.

The Data Utilities have a very good range - Load/Save picture, Format Disk, Directory of Disk, Delete File and Rename File. The Directory displays not only the Pictures but also Fonts, Patterns and Brush files and free sectors. All Load and Save routines have nesting and previous file recognition.

THE EDITORS There are three editors available, Font, Pattern and Brush. All the editors employ the same theme, you modify an existing set, Design mode is saved or Loaded at any time. Even though there are already 40 brushes, the use of an editor is worthwhile especially if you wish to 'spot' colours on the screen. The same applies to the Patterns. Apart from getting a Fill Editor, there is also a display across the width of the screen. Colours can be changed but need to be selected before colouring for best results. With the Font editor I found that if you use a font from the entry type available on one of the PAGE 8 Utility disks and remove them using SET as the command, then you will save yourself a whole lot of time. On the other hand, playing with the editor can be a whole lot of fun.

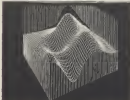
PICTURE VIEWER. Apart from loading pictures neatly from the Artfile disks, the only way to view pictures properly is to load up the sectors called Arts Gallery which is a self contained program which can be copied to other disks. The annoying part is that you cannot go from this to the Arts Bench or vice versa, each part has to be loaded separately. However, as previously stated, you can Format, write D2E

and Autoboot and write the program to disk, all without ever leaving the program. Choosing pictures is simple but unfortunately it does not have the capabilities to generate a selection of pictures that allows you to descend menus to the screen to choose the next one.

PICTURE DUMP This screen is again selected from the 'Art Gallery'. A choice of three pictures is given (Spain, Germany and Provence) plus the opportunity to create your own by typing in your picture codes. Once a picture option is displayed on screen with the option to accept or refuse it, you are offered the choice of using twelve different variations of shading. These are quite well represented by a number code to get area from 24 (solid) to 0 (blank). Each colour can be selected for shading of your choice. The program cannot detect subtle changes in colour variations such as using DLJ's to achieve more than four colours, consequently only four shades are dumped in the printer. The picture itself is one size, taking half a page. The timing for the dump was average and the quality good.

CONCLUSION With extensive error trapping, clear messages and the added bonus of a machine code program to allow execution of pictures into BASIC files, the program is excellent value for money. All programs, except those manual, are heavily protected against copying. The only screen pointer is the documentation which is only ten pages long, with six devoted to instructions and only one to description. For a truly engaging and comprehensive program such as this, much more extensive documentation should have been provided.

Graphix Art Department is proud to announce and is available from any of the retailers advertising on PAGE 6 or from the distributors themselves. Whether you are a budding artist or just a doodler, the Graphix Art Department is for you!



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

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II. TRANSYLVANIA



I was lying on the rug wondering what to write about for this month's Adventure column when the temperature suddenly dropped and the sky clouded over. "Oh, oh. Looks like we're in for a storm," I said to myself.

As I moved hastily and scurried down to my desk, a sharp shattering crack of thunder broke the summer silence. Then down came the rain. And the hail.

As it happened, it was only one of our typical summer thunderstorms and the frenzy was short lived. However, while the sky was dark and the rain pelted down, it reminded me of the inevitable (and inevitable) all those B-grade horror movies. Do you know the ones I mean? They're always set in an eerie old mansion or a castle with a cemetery and the story involves vampires or werewolves. Also? That's just what the Adventure column needs for a change. A good, old-fashioned horror story. And Penguin Software's "Transylvania" fits the bill perfectly.

THE GAME: "Welcome to TRANSYLVANIA! You'll need your ghost sign the guest register..." That sounds like a reasonable request. You sign your name.

"And payment of tax?" "Oh, oh! You don't like the sound of that, but you type in your next of kin's name as collateral.

"For many a clock under 12."

You have just begun playing Transylvania. The object of the game is to find and rescue the Princess Isabella before dawn. If you're an old, die-hard Adventurer, then you've probably rescued more Princesses than most people have had hot dinners. One note should be a piece of cake, so you set off full of confidence.

Almost immediately, you're being tormented by strange sounds in the forest. "You hear moaning noises in the distance. A wolf's credit cuts through the still air of the night. A strange ghastly shape flaps past noisily crying 'DARKY, GARKY...' Scare it or leave (and mean likely worse than last), you'll encounter the werewolf! If you bang around longer than one move, he'll leave you for dinner, so you'd better move off as soon as he appears. Unfortunately, he keeps popping up all over the place and you'll soon grow to dread his inhuman appearance. Therefore, your first aim should be to kill the werewolf! This won't be too difficult if you remember your horror movies and you can find the correct name to carry out the task.

Once free of the werewolf, you can explore the enchanted forest and its surroundings at your leisure. When you return into the castle, you'll encounter another of Transylvania's dangerous inhabitants - the vampire. Unlike the werewolf, the vampire can easily be kept at bay (if you remember your horror movies), but is that the right thing to do? I'll let you ponder on that.

And so it goes on. If you like all those awful B-grade horror movies of the 1950's and 1960's, then you'll love Transylvania.

OTHERS IN THE SERIES: Actually, Transylvania is only one of a series of Adventures available from Penguin Software. The others are The Covered March, The Quest and Ring Quest. All are illustrated Adventures in much the same vein as others that I've reviewed in this column. As the time of writing, only Transylvania and The Quest are available for the Atari. However, this may change in the future.

I recently discovered an excellent little Adventure's newsletter called "Questmasters". The November 1985 issue had a review of a script to Transylvania. It is called "Crimson Crown: Transylvania II" and has more illustrations and harder puzzles than the original. It is also the first Adventure written with "Computerized", Penguin's proprietary Adventure development system. Computerized allows easy conversion to various computers and also has an advanced parser for full automatic input. Apparently an Atari version of Crimson Crown is underway and The Quest and Ring Quest are being revisited for the Atari using Computerized. From friendly war? (Incidentally, for anyone interested, Questmasters is a very nice 12 page monthly news letter covering news, reviews and classified advertisements for die-hard Adventurers and fantasy role playing gamers. International subscriptions are US\$120 per year from Questmasters, 362 Elgin Court, Wayne, PA 19387, U.S.A.)

—by Garry Francis of Sydney, Australia—

A GRIPE: Unfortunately, I do have one gripe about Transylvania. When I tried to load the disk, it just refused to load. I disassembled the boot vectors and found that the failure to load was probably because of an overflow in a timing routine in the copy protection. Without digging too deeply, it appeared that the program would have worked nonetheless. NTSC systems which update the real-time clock 50 times per second, but it would not work on a PAL system which updates the clock 50 times per second. I have since bought The Quest and found that it had the same problem. In both cases, I overrode the problem by changing one byte to bypass the timing routine.

I have notified Program of the problem and, quite to my surprise, they quickly responded that the technical department had been informed and would work on a solution to the problem. In the meantime, if you buy Transylvania or The Quest and you encounter the same problem as I did, just change sector 800 byte 041 from 8A9 to 8A0 (assuming the boot vector is located in unformatted bytes and all vectors are unformatted). Alternatively, just run the accompanying BASIC program and you can lose your loading problems postage.

HINTS: Transylvania has fairly logical puzzles and I found it fairly easy to solve. If you have any problems, I can think of four sources for you to turn to. Firstly, you can refer to my usual hints at the end of the magazine. These are coded in the same way as usual and should help you out with most problems without giving you a straight-out answer.

Secondly, you can write to Program Software at the address given in the documentation and ask for the Transylvania hint sheet. These vary thorough. You first look up a keyword (the word(s) which goes into one or two numbers). You then look up the question corresponding to the number. There are 32 questions altogether. Each question has three hints ranging from vague to very specific. Both questions and answers are coded to avoid revealing too much. For example, question 1 reads "VCE RC W TWIX HVS KSPKCEET?" which must be decoded using a slip code to reveal "HOW DO I KILL THE WERWOLF?". As I didn't receive any hints and after I'd finished the game, I didn't want to manually decode all 32 questions and 96 hints, so I wrote a little program to help me out. This is included at the end of this article. You can also use it with the hints for The Quest.

Finally, you can get a complete solution to "A Showup Through Advertisements" by Jack Central, at 4 (Darius) or "The Book of Adventure Games" by Ken Selvastr (Armsy, Inc.).

HELP WANTED

Just before finishing up this month, I've got a couple of requests of my own. One Adventure that I'd like to cover in the next issue is Aylmer. (Game game) Unfortunately, I haven't been able to solve it. If anyone knows how or where to get the magazine or the plot manual, please let me know! First to with the correct answer gets a free disk of Adventures!

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Some years ago, SoftSide magazine had a thing going called the "Adventurer of the Month Club" where you paid a monthly subscription and they sent you an Adventure every month. I was in the club for about 18 months, but I missed out on the very early Adventures and one of the last ones. When I tried to buy these from SoftSide, they told me that they weren't available for the Amn. However, thanks to a Page 6 reader, I have now discovered that they were lying to me! As SoftSide now input, I must turn to Page 6's readers for help. Does anyone have the old Soft Side Adventures? I'm looking for Jack the Rapper, Crown, Around the World in Eighty Days and Jack the Rapper II (if it was ever released). I can swap for others in the series or buy them outright. Any offers?

NEXT ISSUE: That's all for this issue. Next time would we'll probably do a little harkening. If you've got any comments on the columns or requests for future topics, just drop me a line at the address below.

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PAGE 4 en het volledige service pakket is

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If you ever wondered why it was so difficult to buy an adventure creation system for the ATARI computers, wonder no more. **THE SLAVE** is here. Now look at what The Slave has to offer and start to wonder again - about how all these features can possibly be available in a single package...

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SHORT REVIEWS



BALLBLAZER

Laserdisc/Action Video

48K cassette (£9.95)

48K disk (£14.95)

1/2 players

1/2 joystick(s)

The year is 2007 and the name of the game is BALLBLAZER - the most popular sport on the Universe. Jump in to your Kestrel and take to the grid for the head-to-head confrontation of the century. Have you got what it takes to become a Masterblazer?

BALLBLAZER might be described as a cross between Soccer and Basketball. It takes place on a huge elongated grid, rectangular in shape, with cooling Gullstreams at either end. There are no teams - just you strapped in your high speed Kestrel against a similarly equipped opponent.

The screen is split into two, so that both players have their own separate view of the grid. You do not see your own Kestrel, only your opponent's. A typical BALLBLAZER game goes something like this: You face one another down the length of the grid. Two Kestrels. Two streamlined gliders. Wherever you go in the Universe, there's only one regulation BALLBLAZER game - three minutes, two players, one victor. How do you get the computer from the Planetoid on down the left. You know you have to get to that orb before he does. Okay, you reach the orb first. Your Kestrel captures it on it's Pathfind - the pulse of energy surrounding it - and the orb immediately changes to your colour. Was for the Kestrel and then accelerate down the grid towards those Gullstreams. They're moving, of course, in the same direction the orb is fired. You sight the goal and now's your chance to surprise him. He moves as to block. Back off and shoot the orb and watch Gullstreams disappear over the horizon. That's a! A brilliant over-the-horizon (OTH) shot. Three points on the scoreboard already. You

Jim Short reviews some recent releases

have to get those OTH shots in early before the goal starts to shudder!

You're in deep trouble from the second face-off. He beats you with some neat Pathfind dodging and shoots a two-pointer. You get the orb next time round but he beats that away and then captures it to shoot another two-pointer. Hey, that guy's no pushover! He leads four to three. You're playing great defence now, but missing a lot of shots on offence. You change tactics slightly. You capture the orb but you don't shoot it at goal. Instead, you flick it and then run at it for a solitary point to even the game-score. He tries the same thing and gets that vital one-pointer. There's only 20 seconds left and you're five to four down!

Face-off number six coming up. You capture the orb and set off down the grid. He's closing in, trying to block the orb away. If you lose the orb now it's someone! You back off - the only safe way to go it back. You can just see the goal on the horizon but it's too small to attempt a crazy three-pointer at this range. Time's running out, so you've got to do something - anything. You try an angled shot off the floor-to-ceiling. It means, but you capture the rebound. That's your sixth score this time. Hard! Blast! You made it - a two-pointer! There's only 5 seconds left on the clock and you may back for honour. The face-off is a mere formality. The disk has gone and it's all over. You was six to four. The atmosphere over the arena glows with the purple colour of your victorious Kestrel. You are BALLBLAZER Champion of the Universe!



BALLBLAZER can be played against a human opponent (the only real way to play the game) or a variety of computer-controlled Drods. The game may be set anywhere from one to nine minutes. You score one, two or three points depending on the distance of your shot and ten points when the game ends, whichever winner is the player with the most points when the timer hits zero. If the points are equal at the stage, the game goes into overtime.

And now for the superlatives, if I can find enough to go on! The graphics are mind-blowing, but then the whole package comes down from start to finish. Disk owners are in for a special treat as the disk version of BALLBLAZER features an incredible animated loading sequence, the like of which I've never seen before. Even the three-minute - or the 'Song of the Grid' to give it it's proper title - is something else! It lacks off with a deep bass toe-tapping rhythm and synthesiser harmonies are then added to produce a complex computer masterpiece which Rich Whisman himself would be proud of. You folks, BALLBLAZER truly is the ultimate in computer games. If you don't buy it, you certainly don't deserve to call yourself an Atari owner - not if you never actually play the game you will not own the most incredible sound in graphics 'Action' yet seen on an 8-bit screen!

Anyway, I'll have to go now. Another budding BALLBLAZER champion awaits my challenge. Well, that's the name of the game. The only game. BALLBLAZER - three minutes, two players, one victor!

ELEKTRAGLIDE

English Software
48K cassette £8.95
48K disk £12.95
1 player
Joystick



ELEKTRAGLIDE is the new laser-act, race game from English Software. Although marketed as a race game, this is slightly misleading as there are no other competitors on the track and the aim is really to survive for as long as possible. To do this you will have to drive hard and fast and also out-manoeuvre a variety of tricky obstacles.

At the outset you are given the choice of three starting strategies which determine how your vehicle responds to joystick control. You can then choose from 3 different tracks or 3 world countries - UK, America or Australia - but, again, this is misleading as in my eyes all three tracks are identical apart from the odd difference in colour-shading.

Unlike the majority of race games, Pole Position included, you do not see your own vehicle as such. Your view is, in fact, a view out-of-the-front window of your vehicle with a dashboard display at the bottom of the screen to keep you informed of your speed and coast-down timer, etc. You begin Stage One of the game at a tunnel and you must try to reach the next tunnel (Stage Two) before the timer on the dashboard reaches zero. You do all this whilst attempting to avoid wet patches on the road, electronic columns beamed down by overhead radars and, worst of all, attacking spiders which track you diligently. At the same time, you should avoid straying onto the roadside kerbing as this reduces your speed and, in rare cases, costs you valuable time. Time is extremely critical in this game!

Graphics are outstanding. The track is very reminiscent of that in Pole Position but the background scenery is much more colourful and spectacular, with a huge snow-capped mountain range dominating the proceedings. The 3-D image is superb - I particularly liked the effects of driving through the tunnels - and scrolling is smooth and completely flicker-free. The theme music is excellent too and, according to the cassette only, is by Yoko (Yoko who?).

New for the hardware. Firstly, there just isn't enough time to complete each stage. You have to drive fast and all the way in order to have any chance at all, making it virtually impossible to avoid the spiders - especially when you go turning round a corner and smash straight into one before you get the chance to see if Aibo, control, could have been better. You have no brakes and can only slow down by decelerating, which isn't a lot of good when you need to brake and hurry to avoid an oncoming obstacle. On top of that, you have to keep the joystick pushed forward at all times to maintain speed. This severely hampers your left/right movement and doesn't do a great deal for your car manoeuvring ability either! Why not use the firebutton for accelerating and decelerating so this doesn't get used during the game anyway. Finally, you do not score any points nor is there any record of distance travelled, so average speed, no matter whatsoever. What is the incentive to play the game again, I wonder?

To sum up, **ELEKTRAGLIDE** is a reasonable enough game which could be a truly excellent game with a few improvements here and there. At the moment it suffers from looking much better than it plays. Perhaps it's biggest fault is that it's sooooo difficult with no mercy for the novice gamer like myself. If you're the type who struggles to make the end of Pole Position then **ELEKTRAGLIDE** may well be beyond your capabilities.

SMASH HITS Vol. 4

English Software
48K cassette £9.95
48K disk £12.95
1 player
Joystick



As the name implies, this is the fourth in a series of compilation tapes from English Software. It contains three of their most recent releases - **CHOP SUEY**, **HJACK** and **KISSIN' Cousins** - plus one other new one which I haven't come across before, entitled **FIRE CHIEF**. The first three games have already been reviewed in previous issues of Page 6, leaving only **FIRE CHIEF** to be covered here.

This particular game covers two completely different scenes and requires

you, first of all, to drive your Fire Chief Mobile along a busy four-laned motorway - dodging traffic at high speed - to reach the offices of English Software in time to thwart the deranged Phantom Fire Bomber, who is trying to destroy all the pre-recorded disk copies of **Elektraglide**. Here, the driving screen gives way to a maze type scene in you fight your way through the advancing flames containing the disks from the safe before they melt into oblivion. From then on the game gets progressively more difficult with even more disks to save but less and less time to do it in. Meanwhile, time can be collected along the way to help you pass the severity of the Phantom.

At the end of playing all **CHOP SUEY** features out there, I have to say that **FIRE CHIEF** is my favourite game of the four. Graphics and sounds are first rate and, just for a change, English Software have come up with a game which even I can get to grips with!

Anyway, **SMASH HITS** No 4 is worth the asking price for **CHOP SUEY** and **FIRE CHIEF** alone. Great value for money.

MERCURY

Novagen
48K cassette for XL & SE £9.95
48K cassette for 486 & 386 £8.95
48K disk (all models) £12.95
1 player
Joystick/Keyboard

You are crashing through space when your ship suddenly goes out of control and you are forced to crash-land on the nearby planet of Tang. You immediately find yourself deep-frozen in the middle of a war between the normally peaceful Polyan inhabitants of the planet - and the invading Mechanoids. Adopting a mercenary role (more out of need than out of choice) you proceed to capture the planet, hoping to find the ways and means of escape. It will be a long and sometimes frustrating process, but it can be done. Indeed, escape can be achieved in a number of different ways, but you must be clever. You can choose to enter allegiance to either side or play them both off against each other in a bid to lay your hands on the invaluable craft which will take you away from Tang. Your only true friend is all this is the ever-reliable **MENSAH** - an alien human PC which you man-

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aged to salvage from the crash—and he will keep you well informed of any important happenings and won't hesitate to offer advice whenever he thinks you need it.

And as the scene is set for **MERCENARY**—“Escape from Targ”, the second game from Paul Wozniak who's previous effort was the enormously popular **ENCOUNTER** (in my opinion, the best ever game from a UK programmer). However, if you're expecting **ENCOUNTER** Mark II then think again. Using its realistic graphics (geometric 3-D shapes), **MERCENARY** is not so much a sequel game as a unique combination of flight simulation, adventure and arcade action which *Navigat* describes as a “World Sandstorm”.

The game is based around a player's-eye view of the proceedings with the action taking place in real time as you set about exploring the cities of Targ and their numerous subterranean complexes, all the while becoming more deeply embroiled in the continuing conflict between the Palgari and their robot foes.

When you are tired of walking around on-foot you can hop aboard any one of a variety of high-speed craft which will make travelling a whole lot quicker and easier. You will also find many objects scattered about in random locations which can be picked up and dropped at will. Some will help you in your quest, others will not. The rest is for you to discover. **MERCENARY** is, above all else, a game of exploration and discovery. A complete new world has been created for you to explore, so the idea is simply to get out there and get on with it!

To be perfectly honest, I had rather mixed feelings about **MERCENARY** to begin with. While recognising its steep aerial views, I couldn't really fault the game on even on its initial stages I was told (by *BENSON*) to go to a certain location where the Palgari would often be seen. And I spent literally hours wandering around in circles unable to co-ordinate the directions. And then I discovered how to work the compass properly and everything clicked into place. Now I'm totally hooked on the game. It's brilliant!

So far I've explored the underground complex, trawled with the Palgari, double-crossed the Mechanoids and run off with their leader, and I've done managed to escape from Targ if it's that bit

thing I do (which it probably will be). It's worth mentioning here that, as **MERCENARY** could conceivably play for ever, you can save various gameplays to disk or tape at any time.

I confidently predict that **MERCENARY** will become an Atari classic in much the same way that *Kluge* has on other systems. Forget all about support ideas for once—that's only for “low-Ranked” anyway!—and enjoy a game that requires logic, cunning, wisdom, imagination and a host of other resources you won't find on the rest of an 8-bit tangle finger. Here you get what it takes to become a **MERCENARY**!

*Preview: If you do manage to escape from Targ it will be beautiful to you as **MERCENARY** II. It's going to have a follow-up is already planned.*

FIGHTER PILOT

Digital Integration

48K disk £12.95

48K cassette £9.95

1 player

joystick/Keyboard

Already a huge hit on the Spectrum, **FIGHTER PILOT** from Digital Integration has now been converted to the Atari. Naturally, this wouldn't be anything to get excited about—conversion from other computers are usually pretty dull—but the programmers have obviously taken the trouble to deliver into the more workings of the Atari to produce a truly excellent software package.

First a quick word about the “Laser-look”—a software protection device which comes with the program. Laser-look is a plastic lens which is fitted and placed against the TV screen in order to read a security code which you must then authenticate to play the game. As a security device it's quite novel. I found it easy enough to use but if your TV picture is fuzzy or your eyeline less than perfect, you may well experience a few problems. It definitely saves a paper though as the program totally refuses to run on without it!

FIGHTER PILOT is a flight-simulator based around the P-15 EAGLE, USAF air-supporter pilot-fighter. A colourful “Options” screen lets things off and gives you the choice of various game options ranging from Launch Practice or Flight Training right through to Air to Air Combat. Other options such as Crosswind &

Turbulence and Wind Landings help to make the simulation as realistic as possible and you can even change the usage of the enemy pilots—waves, squadron leader, instructor or not—in order to test your combat skills to the limit.

Once into the simulation itself, the top three-quarters of the screen is taken up by the view from the cockpit window with the remaining quarter representing the instrument panel. The panel is clear, well laid out and contains all the instruments you'll need to pilot the plane successfully—airspeed, fuel, thrust, roll, pitch, altitude, flight computer, engine, etc.

You fly the plane using the joystick but keyboard options are provided for the more important aspects of flight control. You can even call up a detailed map of the ground terrain by pressing the appropriate key!

In combat mode it's your job to defend your world life from enemy attack. A target cursor is super-imposed on the screen to help you line up the enemy aircraft, but allowing them down is no problem. In this simulation the emphasis is on “Speed” and your jet fighter responds quickly and instantly—sometimes too instantly—to the controls and a delicate touch is needed at all times if you want to avoid rolling upside down! It takes some getting used to.

The graphics are superb and the whole simulation has a tremendous feeling of both speed and realism. It beats the best out of all those boring 747 simulators which give the impression that you're at the controls of a flying carrom and are good only in a very fly-by-the-book manner. Once you've flown an P-15 you won't look at a 747 again!

Incidentally, this program will undergo conversion with Microspace's **STRIKE EAGLE** as they are similar in concept. **STRIKE EAGLE** is the slightly more complex of the two but it concentrates more on the combat role of things and is, therefore, more arcade-oriented than **FIGHTER PILOT**, which is a true flight-simulator in every sense of the word.

Looking at **FIGHTER PILOT** purely as a flight-simulator theme, there is no question that it is the very best available for the Atari so far (and a good deal cheaper than most of the others). Digital Integration are to be congratulated for getting it right first time. Let's hope there's more to follow—

THE GOONIES

Datascop US Gold
48K cassette £9.95
48K disk £14.95
1/2 players
Joystick(s)

These days software companies are leaping onto just about any popular theme to issue their products on - films, TV programmes, pop groups even. Anything to make a fast buck, it seems. Some work, others don't. The Yasuqari is right nearly every time though and GOONIES (based on the blockbuster Steven Spielberg film of the same name) from Datascop is no exception.

GOONIES is a platform game of sorts but, like it's predecessor GOMAN & the BARRABANS, each screen requires you to solve a puzzle in order to exit that screen and move on to the next. You get no game instructions either, only a printed 'help' sheet containing pictures of the eight individual screens with eight short re-corder phrases which give you various hints as to how to tackle them, but not enough to give the game away entirely.

This may sound pretty vague to you, but what makes GOONIES unique is that you control not one game character, but two! There are seven Goonie characters in all and each makes an appearance at some time or other. There are only two on screen at any one time though and you must make them work together to 'solve' the game screens and help them to reach their ultimate goal - One-Eyed Willy's Pirate Ship (if you've seen the film, this probably makes sense to you).

You control the characters with a single joystick, using the direction to switch from one Goonie to the other. You cannot solve any of the screens without close co-operation between the two characters, so you will have to master the art of quadruple co-ordination or risk getting logged down on the first screen!

On your journey through the eight screens you will encounter an assortment of enemies such as deadly bats, demons, flying skulls and poisonous slugs, but the main problem is with the puzzles themselves. You'll experience a lot of head-scratching before things finally fall into place - I know I did. On the plus side, once you have solved the puzzles the screens contained

are a rollover! around time round.

The Goonies go about their work accompanied by a nice little background jangle (from the film itself, I suspect) which can be muted off if you prefer. Graphics are extremely hi-res and offer only a great deal of time and effort have gone into their design. Each screen is drawn at extreme detail, though the use of colour is fairly limited - only red, blue, white and black are used, but this is just a minor criticism of what is an overall work of art. Of course, all this means that the program would not fit onto the available memory and, consequently, the eight screens have to be loaded individually over on the cassette version. This sounds like a hassle, but really it isn't. The bulk of the code is contained in the main program and therefore each screen loads quite quickly - about 25 digits on the tape-counter - so don't be put off by this.

As long as Datascop continue to produce games of this quality they will remain one of the premier independent Atari software companies. GOONIES is a winner all the way!

TAPPER

Sega US Gold
48K cassette £9.95
48K disk £14.95
1/2 players
Joystick

Sega's range of Atari computer games are gradually becoming available in this country thanks to US Gold. TAPPER is one of the new releases and, in this game, you play the part of a frustrated bartender whose job is to serve and see to the needs of a throng of thirsty customers. You push the bartender between the bars, pressing the Enter key to 'slag' orders at the customers. The aim is to bring them back through the doors of the saloon (the customers, that is) in as efficient a time as the bar and progress to the next round of play. You can only serve one soda per customer, otherwise you lose one of your five allowed lives. Sometimes the customers will remain in the saloon and try to eatly poison by slugging their empty glasses back at you. If you allow any of these to drop off the end of the bar you also lose a life.

After a set number of rounds you are required to tackle the bonus round.

Here, the mysterious Soda Bands shuffles five out of six soda cans on a solitary bar top and challenges you to choose the only available one. If you guess correctly you gain 1000 bonus points. If you guess wrongly, however, all you get is a free fill of soda!

The disk version of TAPPER features five different screens - Old West Saloon, Jack Bar, Punk Bar, Space Bar and, of course, the Bonus Saloon - but the cassette version has only three (the Punk and Space Bars are missing). There is a very good reason for this. The cassette version is really only the Bonus version of the game transferred directly onto tape. In effect it's a 16K game but it still requires 48K as it retains the original 16K memory addresses.

I can thoroughly recommend the disk version of TAPPER. It's ridiculously simple to play and highly addictive into the bargain. The cassette version is okay, but lacks energy. One more thing - do not be fooled by the customer photos on the cassette label as they come from the arcade game and the graphics don't do much better than any computer version. Segal has gotten into a habit of displaying weak screenshots on their computer software and I, for one, don't approve. Apart from being misleading, it surely contravenes the Trade Descriptions Act in some way! *

Coming...



Atari Art



Dragon by Dan Abnett



Vampire Eyes by Dan Abnett



Woman by Dan Abnett



Pagoda by Dan Abnett



Smile by Dan Abnett



Smile by Dan Abnett



Huge Boat by Dan Abnett

These pictures are a selection of many more in the readers of **PAGE 4**. How nice don't you think the Atari Times Table?

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Overseas readers please see page 3

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CIO SLIDESHOW

We all know the quality of Amn computers when it comes to graphics displays but many of the high resolution programs or graph drawing programs take quite a time to create a screen, and artistic masterpieces are often unrepresentable. It would be useful to have a completed screen for later recall by saving the contents to diskette so that the original program is not needed to display the picture again. The recall must be fast if it is to be effective. A high resolution screen (graphics) takes 8192 bytes of memory to store in a lot of data is moved for this sort of task Base or the too slow.

CIO - FAST DATA TRANSFER

I visited a machine code programmer and he was delighted to find that the Amn operating system includes machine routines for the fast transfer of data. These consist of an entity called Control Input/Output (CIO) which is used for all data transfer processes such as program load/save or output to screen or printer. The use of this general purpose device for data transfer routines was well described in Analog Computing No 33 (Sept/Oct 1975), by Richard Greenhow and his colleagues; close advice on how to use the CIO from basic I will extend this article to the specific use of CIO for screen data display modes and for the SLIDESHOW program which will display a sequence of saved pictures.

IOCBs

Before using CIO routines some preparation must be made. This consists of setting various parameters in the Input/Output Control Blocks (IOCBs). There are 4 IOCBs of which IOCB #0 is normally used for the screen editor (E), IOCB #5 is normally used for graphics screen display (S) and IOCB #7 is normally used for LPRINT, LOAD and SAVE routines. We will use IOCB #1 for our screen data transfer. Each IOCB occupies 16 bytes with IOCB #0 starting at memory location 18E, IOCB #1 at 24E and so on. The IOCB can be set up from basic by FORBs to the required memory locations. For our purposes the important memory locations are:

| | |
|--------|---|
| IOCB+0 | Must contain 7 for Get or 11 for Put routine. |
| IOCB+4 | Low byte of the starting address in memory from which you will transfer data. |
| IOCB+5 | High byte of address location. |
| IOCB+6 | Low byte of the number of bytes of data you wish to transfer. |
| IOCB+9 | High byte of the number of bytes to be transferred. |

This will become clearer as we go through the first program.

CIOHUMP

The first listing, CIOHUMP, is a short program which may be appended to a graphics program so during the resulting screen data to disk. This data will be in the correct format to be used by the SLIDESHOW program later. A brief description follows.

The first set of 80 bits are inserted to give a reminder that this program will not work alone. It has to be appended to a program which generates the picture to be stored. The graphics program must determine a string FF and give a name for the file to which the picture data will be stored such as DRAWING.PIC. The PIC extender is recognised by the SLIDESHOW program. Choose a file name that is not in use already or the new data will overwrite the old.

Line 5000 selects IOCB #1 and opens it to Put data.

Line 5020 turns the graphics mode of the current screen to disk file FF.

Line 5040 turns the colour register values.

Lines 5060 to 5070 work out the start of screen memory (DLIST) and the number of bytes to transfer (NUMBER).

Lines 5080 to 5160 find the starting address of the IOCB Point List (using IOCB+1) (low Put operation) then split DLIST and NUMBER into high and low bytes and push the resulting values into the current IOCB register.

Line 5170 ends the CIO routine - the short string "b-b-b inverse "b-V inverse d" is a machine code routine which calls CIO.

continued next page

by Ian Finlayson

```

00 1 000 .....
00 2 000 0 .....
00 3 000 0 .....
00 4 000 0 .....
00 5 000 0 .....
00 6 000 0 .....
00 7 000 .....
00 8 000 .....
00 9 000 .....
00 10 000 .....
00 11 000 .....
00 12 000 .....
00 13 000 .....
00 14 000 .....
00 15 000 .....
00 16 000 .....
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00 100 000 .....

```

```

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00 100 000 .....

```

SLIDESHOW

The second program, SLIDESHOW is a program which will display all the picture files on a disk. All that is needed is to ensure that the files have a .PIC extension.

Lines 50 to 60 retrieve all file names with a .PIC extension from the disk and load them into a string 84.

Line 70 branches to 250 if no picture files are found.

Lines 80 to 110 get a file name (A1) from 84 and conversion to the right format for use with the OPEN command in Line 20 (a G: FILE PIC).

Lines 120 to 210 are very similar to the GRAPHAMP routine - use the POKE (XCB+2,7) in line 160 for a G:n command.

Line 220s there to ensure that there is no text window on the display and to allow each picture to overwrite the previous one. If you prefer to watch one picture all before loading the next delete line 212. This is usually better when a disk with several pictures on different graphics modes is being displayed - some odd effects are generated when the graphics mode is changed while the picture data is retained.

Line 230 displays the picture for a short time before returning to 90 for another file. The POKE 17,0 is to stop the display going into screen mode if the program is left to repeat for a long time.

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MEMORY USE

These programs will handle all graphic modes and even mixed mode screens as the display list is stored as well as the screen data - but you will soon realize that the various modes take up very different amounts of space. The advice that one picture is worth a thousand words is borne out by the relative amounts of data required to store them! The space taken up on a disk by each mode is shown in the table:

| Graphic Mode | Disk Sectors |
|--------------|--------------|
| 0 | 9 |
| 1 | 6 |
| 2 | 4 |
| 3 | 4 |
| 4 | 6 |
| 5 | 10 |
| 6 | 18 |
| 7 | 24 |
| Load over | 66 |

High resolution screens soon fill up a disk but you can give impact to your slideshows by interleaving pages of Graphics 1 or Graphics 2 text. They load very fast and can be used to complement the pictures.

FURTHER DEVELOPMENT

There are some obvious enhancements which can be made to these programs which would improve them - for instance how about using a memory saving algorithm to compact the screen memory before saving it, or adding a screen dump so that hard copy of the pictures can be made at any time? I would be pleased to hear from anyone who works out improvements to the programs.

I will send a copy of the programs with a set of demonstration graphics to anyone who sends me a disk and return postage, (and your address clearly written!) and would also like to build up a library of graphics on disk if any of you with remaining floppy would send me a copy - I will send your disk back!

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FIRST STEPS

WRITE A GAME

continued

In the first WRITE A GAME article, I had promised to show you how the "FINISHED" and "AGAIN?" lines shown in the algorithm would work. That had to be left out of that article but I will include it now.

When you have set up the introductory display screen, it is best to wait until the user has fully finished reading so it can be annoying to move on to the next screen before you have read the first. However, waiting for user response does break the program flow and 'delay' or 'wait' statements are sometimes best, especially if it is a display screen that can be listed and analyzed later. These delay statements take the form:

```
FOR WAIT=1 TO NUMBER, NEXT WAIT
```

where NUMBER is any value that is suitable for your program.

If you do want user response then probably the simplest way is to monitor keyboard response. The following example will correspond to the "FINISHED" box.

```
180 > "PRESS ANY KEY TO CONTINUE"  
190 POKE 36435 : REM *** This sets the first key pressed location to a ready printed condition  
190 IF PEEK(364) = 0 THEN GOTO 220 REM *** Keep looking to see if any key is pressed  
190 > "THANK YOU" REM *** PEEK(364) is less than 255, i.e. a key was pressed
```

To use the "AGAIN?" line, the computer must be supplied with a specific answer. In this case PEEK(364) will have to be 45 for 'Y' or 32 for 'N'. Any other response should send the computer back to look at the keyboard again.

```
200 > "SAME AGAIN?"  
210 POKE 36429 : REM *** Clear register  
220 IF PEEK(364) = 45 THEN GOTO YES : REM ***  
Subroutine  
230 IF PEEK(364) = 32 THEN GOTO NO  
240 GOTO 130 REM *** Look again
```

Another way to do this is to look directly at the input. As some users tend to input "YES" while others input "Y", it is necessary to look only at the first letter of the input. Thus you need only REM the string to one character, saving on memory.

```
260 DIM A(1)  
270 INPUT A$
```

```
130 IF A$="Y" THEN GOTO YES : REM ***  
Subroutine  
130 IF A$="N" THEN GOTO NO  
140 > "TRY AGAIN" GOTO 130
```

There are other ways to do this, but these are about the simplest.

Let's go on now to some feedback from the first column. I received a letter from Steven Wayne of Palmsen Green Service, who does some teaching, and he said that I should explain what all the POKEs are for and should use REMs more often. I had hoped that readers would read themselves of the PAGE 6 offer of Mapping the ATARI, but if not then I will gladly run over the listing again.

Line 584B - POKE 594D, as described in the text, will switch off the screen and allow the computer to run faster. The screen will also appear fully drawn when switched on again. POKE 710 is one of the colour registers used instead of SETCOLOR.

Line 585 - POKE 712L will turn off the cursor. POKE 510, 34 will turn on the screen.

Line 586 - again POKE 594D to switch off screen. POKE 712,34 another colour register (I have no idea why I also used a SETCOLOR statement here). POKE 736,226 sets the characters to lower case, and POKE 732,1 to switch off the cursor.

Line 587 POKE 194,34 - switch on screen.

So much for the first part of the game. The next I have provided some additional numbers on listing 1 which should be added to the first part of the game to make 15. I hope that you read the last "FIRST STEPS" column about LOCAL, as the program makes use of this command. The keyboard entry is looked at (lines 1010, 1180 and 2010, 2080) and then compared with the associated screen location. The value of the screen location is then checked to see if it contains 'C' or 'D'. If it does then the choice must be made again. If not, the relevant character is printed to the screen. To make life easier, I made the last message with exactly a 1000 difference (wasn't it good to see?) All you need do is change the line number and then C3 to C6 and be RETURN.

Remember that the program is not complete and will be added to in future issues.

by Mark Hutchinson

Listing 1

```

10 DIM A(10), B(10), C(10), D(10)
20 FOR I=0 TO 9
30   A(I)=INT(RND*100)
40   B(I)=INT(RND*100)
50   C(I)=INT(RND*100)
60   D(I)=INT(RND*100)
70 NEXT I
80 PRINT "Initial values of A, B, C, D"
90 FOR I=0 TO 9
100  PRINT A(I); B(I); C(I); D(I);
110  IF I/3=0 THEN PRINT
120 NEXT I
130 FOR I=0 TO 9
140   A(I)=A(I)+B(I)
150   B(I)=B(I)+C(I)
160   C(I)=C(I)+D(I)
170   D(I)=D(I)+A(I)
180 NEXT I
190 PRINT "Final values of A, B, C, D"
200 FOR I=0 TO 9
210  PRINT A(I); B(I); C(I); D(I);
220  IF I/3=0 THEN PRINT
230 NEXT I

```

Listing 2

```

10 DIM A(10), B(10), C(10), D(10)
20 FOR I=0 TO 9
30   A(I)=INT(RND*100)
40   B(I)=INT(RND*100)
50   C(I)=INT(RND*100)
60   D(I)=INT(RND*100)
70 NEXT I
80 PRINT "Initial values of A, B, C, D"
90 FOR I=0 TO 9
100  PRINT A(I); B(I); C(I); D(I);
110  IF I/3=0 THEN PRINT
120 NEXT I
130 FOR I=0 TO 9
140   A(I)=A(I)+B(I)
150   B(I)=B(I)+C(I)
160   C(I)=C(I)+D(I)
170   D(I)=D(I)+A(I)
180 NEXT I
190 PRINT "Final values of A, B, C, D"
200 FOR I=0 TO 9
210  PRINT A(I); B(I); C(I); D(I);
220  IF I/3=0 THEN PRINT
230 NEXT I

```

That way if you try your hand at changing the introductory terms which appear on the first part of the listing in case 189 I received a letter from Cliff Wording, who wants to a lot of trouble to try writing his own introductory program. I used my hand at suggesting his work to some hints were not in Cliff's original program but I hope, after all his hard efforts, that you type in his program which is Listing 3.

The next stage will look at how we can check to find out if a player has won, and how to tie in this test with the two programs in this issue.

Now for next month's homework. I want some simple sub-routines to allow the computer to pick a square (HINT: How about my article in issue 189) and also to store and check persons chosen. I hope that I will not have to write this routine myself. Let's hear from you.

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FOR SALE: Do An Atari £7 Also Atari Technical Notes (Operating System & Hardware manual) £3. Both in very good condition. Please phone Steve Taylor on 01 811 3942 after 7 p.m. please

LOGO: Birmingham School Atari LOGO project seeks information as how to get a LOGO screen dump to an Epson (or other) printer. All ideas and contact welcome. Laurence Boyce, Birmingham Educational Computing Centre (BEECC), The Bordenley Centre, Comp Hill, Birmingham, B11 1AR

CONTACT really does work! If you need help or want to get in touch send your notice to **PAGES** on a separate sheet of paper headed **CONTACT**. We will accept any notices except those offering software or copying utilities for sale or exchange.

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